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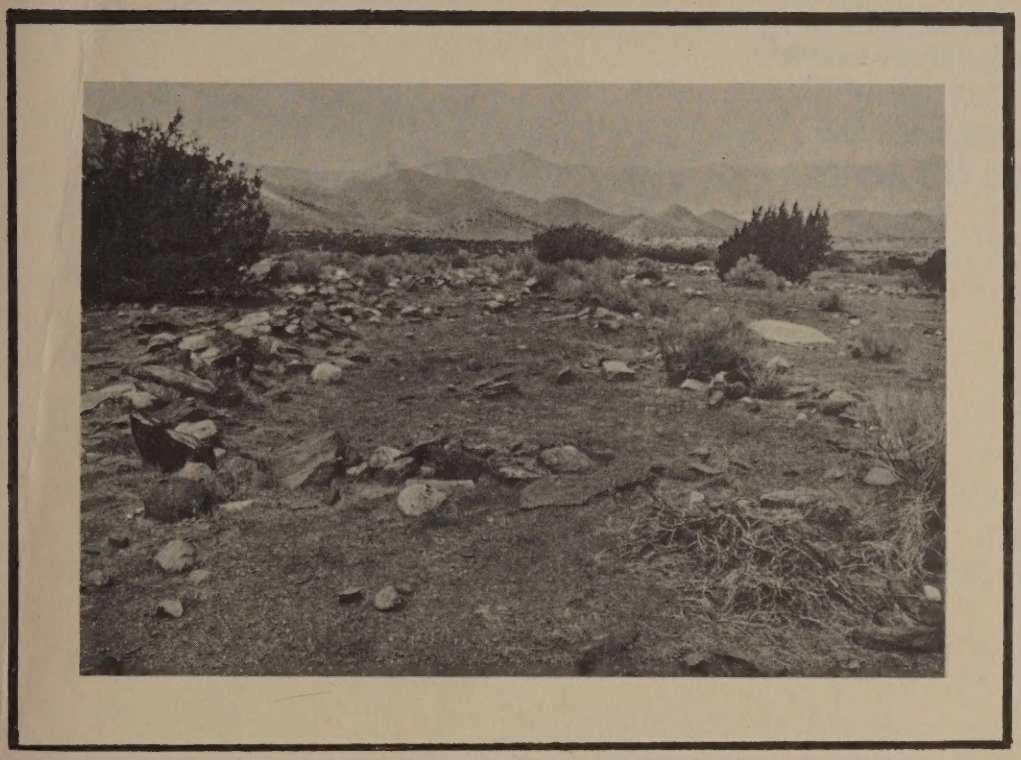

The Valley of the South Fork of the Kern River: Cultural Resource Management Proposals for the Long Canyon Village Site

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The Valley of the South Fork of the Kern River: Cultural Resource Management Proposals for the Long Canyon Village Site

Sally Salzman
January, 1977

Bakersfield District Office
Bureau of Land Management
Bakersfield, California

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Purpose of Study

The aim of this study is to examine the archaeological features of the area defined in order to develop a cultural resource management plan which will adequately protect these nonrenewable resources and, particularly to develop a protective and impact mitigative plan for the Long Canyon Village Site, Ker-311. To this end, it is necessary to describe a brief environmental history of the study area (including geologic, hydrologic and climatic aspects) up to the present. A history of land use in the South Fork Valley will be undertaken, encompassing aboriginal land use and later use for mining, ranching, agriculture, and recreation. This section will include a brief account of relations between the aboriginal population and later settlers. Available ethnographic information on the Tubatulabal will be summarized, and a short ethnographic account of the group will be given.

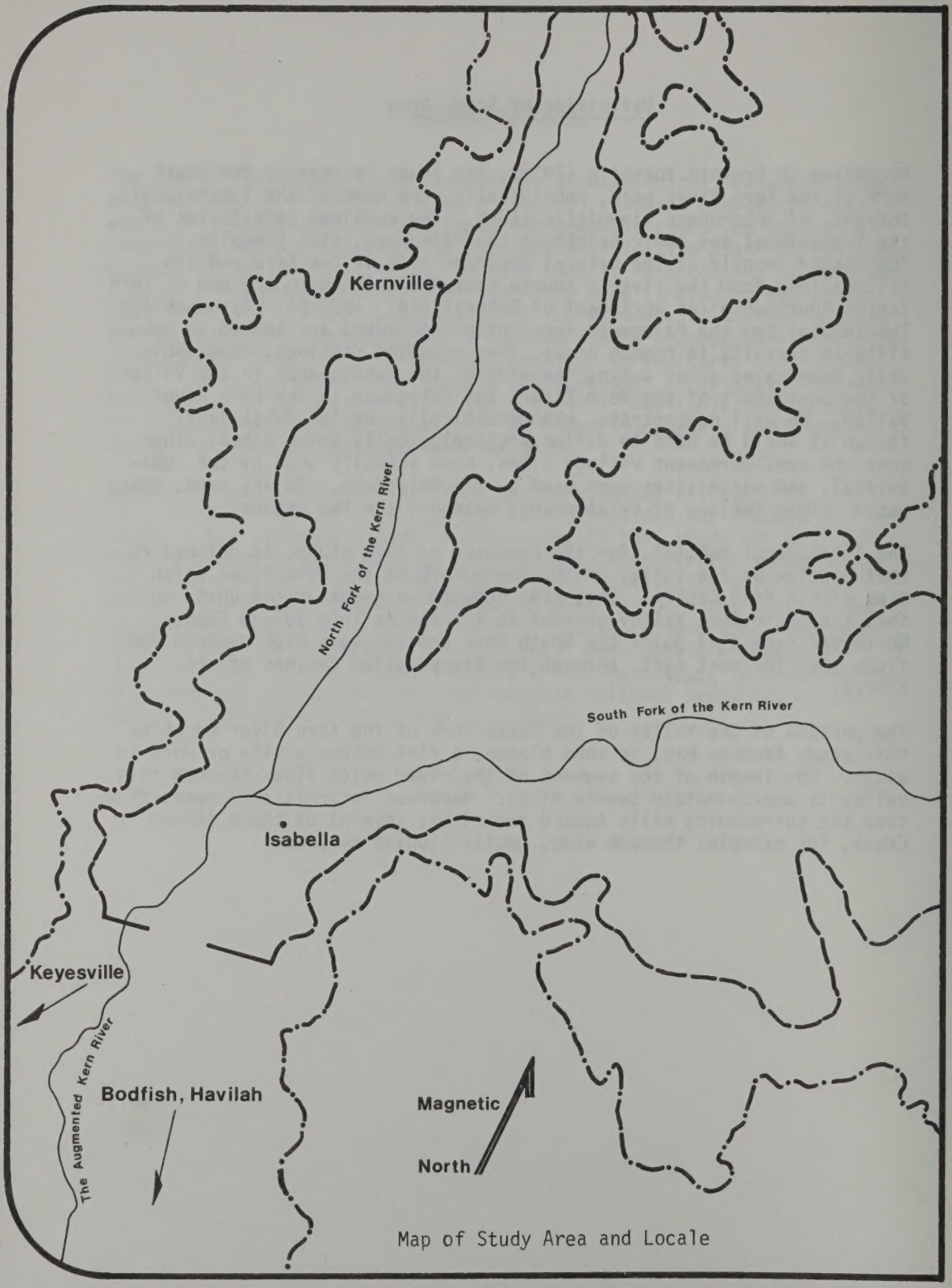
Archaeological emphasis will be on the Long Canyon Village site, Ker-311, the discovery of which (on BLM lands) provided the impetus for this study. This site was mapped in the course of this study and will be described here. The necessity of protecting the cultural resources of the study area and the possibility of their destruction will be discussed. A cultural resource management plan for BLM lands within the study area, and particularly for Ker-311, will be described, and suggestions for its implementation laid out. Some possible research opportunities will be listed. Emphasis will be placed, in this report, on protection of the fragile, nonrenewable cultural resources of the Valley of the South Fork of the Kern River.

Definition of Study Area

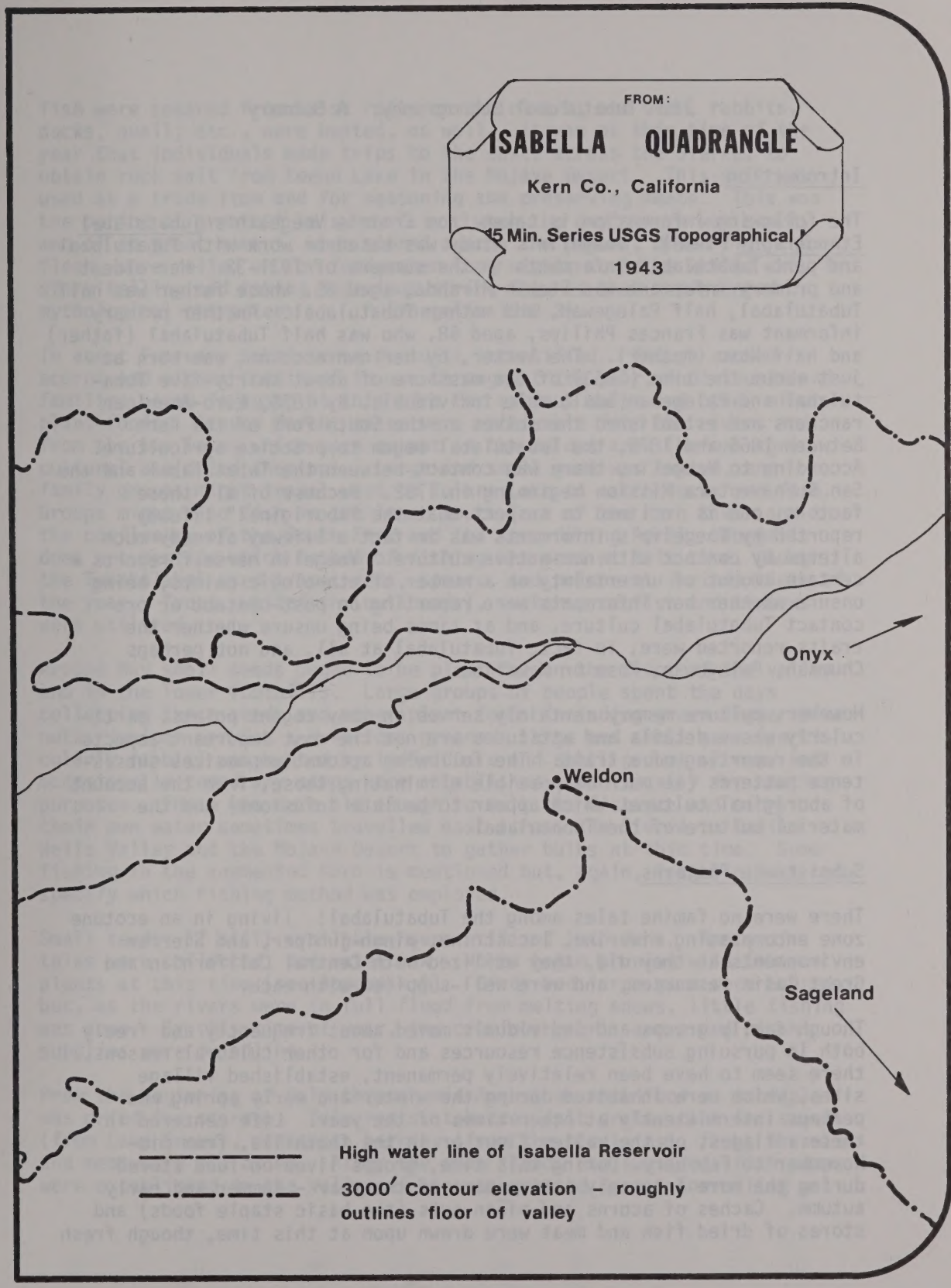
According to Erminie Voegelin (1938), the lower reaches of the South Fork of the Kern River were, aboriginally, the home of the Tubatulabal Indians, of Shoshonean linguistic stock. The combined territories of the Tubatulabal and their neighbors the Palegewan, says Voegelin, "consisted roughly of the natural drainage area of the Kern and its tributaries, from the river's source near Mt. Whitney to the end of Kern Canyon fourteen miles northeast of Bakersfield" (1938:9). Although the Tubatulabal and the Palegewan frequently interacted and shared in subsistence pursuits in common areas, they occupied distinct, geographically demarcated areas during the winter, the Tubatulabal in the Valley of the South Fork of the Kern River, the Palegewan in the Kern River Valley. We will concentrate, ethnographically, on the Tubatulabal, though it would be hard to define archaeologically which sites, other than the semi-permanent village sites, were actually used by the Tubatulabal, and which sites were used by the Palegewan. In any case, there was a strong feeling of relationship betweeen the two groups.

The Tubatulabal habitat, for the purposes of this study, is defined as that portion of the Valley of the South Fork of the Kern River which lies within Kern County. This area composes a geographical unit, in that the South Fork Valley narrows as it crosses into Tulare County. Northward from this point the South Fork crosses some high meadows and flows, for the most part, through the steep walled canyons of the Sierra.

The portion of the Valley of the South Fork of the Kern River on which this study focuses has, in some places, a flat bottom a mile or more in width. The length of the segment of the river which flows through this valley is approximately twenty miles. Numerous intermittent creeks flow from the surrounding hills toward the river, several of these (Kelso Creek, for example) through wide, gently sloping canyons.



Map of Study Area and Locale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ISABELLA QUADRANGLE
Kern Co., California
15 Min. Series USGS Topographical
1943
Onyx
Weldon
Sageland
High water line of Isabella Reservoir
3000′ Contour elevation – roughly outlines floor of valley

II. Tubatulabal Ethnography: A Summary

Introduction

The following information is taken from Erminie Voegelin's Tubatulabal Ethnography (1938). Voegelin's study was based on work with Tubatulabal and part-Tubatulabal informants in the summers of 1931-33. Her oldest and primary informant was Steban Miranda, aged 86, whose father was half Tubatulabal, half Palegewan, and mother Tubatulabal. Another primary informant was Frances Philips, aged 68, who was half Tubatulabal (father) and half Koso (mother). The latter, by her own account, was born at just about the time (1863) of the massacre of about thirty-five Tubatulabal and Palegewan adult male individuals. By 1870, Euro-American ranchers had established themselves on the South Fork of the Kern. Between 1865 and 1875, the Tubatulabal began to practice agriculture. According to Voegelin, there was contact between the Tubatulabal and the San Buenaventura Mission beginning in 1782. Because of all these factors, one is inclined to suspect that the "aboriginal" lifeway reported by Voegelin's informants was in fact a lifeway already much altered by contact with non-native culture. Voegelin herself reports a certain amount of uncertainty on a number of ethnologic points, being unsure whether her informants were reporting on post-contact or pre-contact Tubatulabal culture, and at times being unsure whether the traits reported were, in fact, Tubatulabal at all, and not perhaps Chumash, Palegewan, Koso or Kawaiisu.

However, culture memory certainly serves on many cogent points, particularly where details and attitudes are not the most important aspects in the reporting of a trait. The following account emphasizes subsistence patterns (as much as possible eliminating those, from the account of aboriginal culture, which appear to be late infusions) and the material culture of the Tubatulabal.

Subsistence Patterns

There were no famine tales among the Tubatulabal: living in an ecotone zone encompassing riverine, lacustrine, pinon-juniper, and Sierran environments as they did, they utilized both Central Californian and Great Basin resources, and were well-supplied with each.

Though family groups and individuals moved about frequently and freely both in pursuing subsistence resources and for other cultural reasons, there seem to have been relatively permanent, established village sites, which were inhabited during the winter and early spring and perhaps intermittently at other times of the year. Life centered in these villages, on the valley floor or in the foothills, from mid-November to February. During this time, groups lived on food stored during the more intensely active part of the year - summer and early autumn. Caches of acorns and piñon nuts (the basic staple foods) and stores of dried fish and meat were drawn upon at this time, though fresh

fish were speared from balsa rafts on the rivers, and deer, rabbits, ducks, quail, etc., were hunted, as well. It was at this time of the year that individuals made trips to the east, across the Sierra, to obtain rock salt from Koehn Lake in the Mojave Desert. This salt was used as a trade item and for seasoning and preserving meats. This was the period of greatest leisure, ". . . when the day's work was short, and of no great moment, when stored acorns and pinons, dried fish and flesh, were relied on for food, when long nights could be whiled away in story telling and making ingenious string figures that represented . . . mythological characters . . ." (Voegelin 1938:2).

In about February subsistence pursuits intensified. Though cached acorns and pinons continued in use throughout the year, individuals and families began foraging at this time for various bulbs and other minor plant foods. Around March, geese were obtainable from the rivers and from the two lakes which were extant in the Weldon area (before agricultural use dried them up). Large and small game was hunted, and family groups might travel west to Tulare Lake to catch ducks and fish. Groups might also fish in the lower South Fork of the Kern River and in the confluence of the South Fork and the Kern during April. Voegelin does not mention which method of fishing was used at this time, though the Tubatulabal used traps, nets, spears, and poison at various times of the year. Trout, whitefish (bullheads), suckers, catfish and minnows were utilized.

Around May small seeds began to be plentiful on the floor of the valley and in the lower foothills. Large groups of people spent the days collecting these seeds and other plant foods including green digger pine nuts, juniper berries and various greens. Large and small game (particularly rabbit) was hunted by individuals and small groups of men, and occasionally temporary camps were established specifically for hunting purposes. Those who were old enough to walk the distance and carry their own water sometimes travelled east across the Sierra to Indian Wells Valley and the Mojave Desert to gather bulbs at this time. Some fishing in the augmented Kern is mentioned but, again, Voegelin does not specify which fishing method was employed.

Small seeds, if still available, were utilized into June. Roots of tules were collected, and eaten raw. Women began pruning wild tobacco plants at this time (see Appendix A). Birds and large game were hunted but, as the rivers were in full flood from melting snows, little fishing was done. By this time of year, the previous year's acorn and pinon supplies were dwindling.

From the beginning of July through mid-August as much food as possible was dried for storage. Tule roots, tobacco, salt grass, cane for sweets (from Cane Creek), manzanita berries (from the mountains), fish, mussels, and meat were all dried. After the snow floods had subsided, fish camps were established in the valley of the unaugmented Kern. Corralling was

THE SUBSISTENCE YEAR

Product collected/Activity	Late Spring	Summer	Fall	Winter	Early Spring
Acorns	cached supplies nearing depletion		near winter villages . . at Poso Flats, Greenhorn, Paiute Mts.		cached supplies
Pinon nuts	cached supplies nearing depletion	at lower areas. .	at higher altitudes	cached supplies	
Small seeds	by large groups				
Game drives		antelope-w/Yokuts in San Joaquin Valley			
		rabbit-w/nets . . . brush fired			
Bulbs and roots		eaten raw . . . collected for drying			Bulbs collected at winter village locale
	bulb expeditions to Indian Wells Valley				
Greens	Group collected				collected vicinity winter villages
Fish	in augmented Kern	no fishing rivers in flood	unaugmented Kern-summer fish camps-(corralled)-dried		
			in streams Erskineck (poisoned)		
			dried supplies	Tulare Lake, speared from rafts on Kern	
Salt		from saltgrass		rock salt expeditions to Mojave Desert	

Product collected/Activity	Late Spring	Summer	Fall	Winter	Early Spring
Cane (for sweets)		at Cane Creek			
Waterfowl			Tulare Lake		Tulare Lake
	Juniper berries in hills	Manzanita, in mts.	wild grapes		
		Juniper berries			
Digger pine nuts	collected green		ripe near winter village sites and in Hot Springs Valley		
Game	occasional camp hunting	deer hunted piñon, acorn grounds . . .			rabbits trapped
	rabbit hunting	small game at piñon grounds		dried supplies of various meats	
Tobacco		pruned	gathered		
Birds				quail hunted . . . some trapping	
Mussels		fresh water near Kernville			
Trade		w/Yokuts at Tejon, Chumash at Ventura		w/Yokuts, among selves	
Winter Village Residence					

one fishing method used at this time. Further, large groups of men fired the brush on the valley floors to drive out rabbits, which were speared, shot with arrows, or clubbed. Antelope drives were undertaken in the San Joaquin Valley near Bakersfield, in cooperation with neighboring Yokuts. Trading expeditions to Yokuts communities at Tejon and to Chumash communities at Ventura were undertaken at this time. Clam shell disk money was obtained in trade, and asphaltum (used for glue, calking, etc.) was collected on the beach. At this point, the subsistence season was reaching its peak: subsistence-directed activities were intensifying.

In mid-August, pinon nut collection began at the lower borders of the piñon area (see below). Juniper berries were also gathered. Birds and small game were trapped and deer were hunted at the pinon grounds. Though the lower reaches of the South Kern were, by now, too warm for much fishing, some fishing was done in the shallows, using fish poison.

By September, piñon nuts were ripening at higher altitudes in the eastern part of the Tubatulabal area and temporary piñon camps were established there. Wild grapes might be collected in Indian Wells Valley by people returning from piñon camps. Hunting at the pinon grounds continued. Acorns, meanwhile, were gathered from groves near the permanent villages.

By mid-October the subsistence pursuit was again slowing down. Ripe Digger Pine nuts, from groves near the permanent villages and in Hot Springs Valley, were gathered. At camps in the Greenhorn and the Paiute Mountains and around Poso and Wagy Flats, women gathered and cached acorns while men hunted deer and rabbits which were "fat at this time" (Voegelin 1938:11). Ducks could be obtained from the rivers, fish were poisoned and collected from Erskine Creek, and families again made trips to Tulare Lake for waterfowl and fresh fish.

By mid-November most Tubatulabal groups were settled in the permanent villages for the winter, though given families would not necessarily return to the same village each year.

In summary, food gathering activities kept Tubatulabal family groups shifting about in lower and upper Sonoran life zones (2000-4000') in valleys, foothills and river canyons, from February through mid-August. About August, larger groups began to move into higher altitudes (5000-6000'), first east to the pinyon grounds on the west slopes of the Sierra Nevada, then west to acorn grounds in the Greenhorn Mountains and other areas in the upper Sonoran zone. Family groups and individuals might undertake trading trips, after piñon harvest was over. Around mid-November, family groups returned to the valley-foothill region and the permanent villages. Then some hunting and fishing might be done, and individuals might go to the desert to collect salt. But from November until February (according to one informant) people "mainly stayed home, not doing anything" (Voegelin 1938).

Voegelin esimates that, in total, 40 percent of the diet consisted of meat and fish, 20 percent of acorns and piñon nuts (with heavier reliance on acorns) and 20 percent of small seeds and other plant foods. Winter was the most dietarily limited season, with almost sole reliance on stored acorns and piñons, and any fresh meats that could be obtained.

Though Voegelin does not specifically state this, informant accounts seem to indicate that the winter villages were never entirely abandoned for long periods during the active times of year. Those who were too young or too old to go on long foraging trips might stay near the permanent villages to collect various resources as they became available there and to attend to drying and caching foods and tobacco. The overall pattern, however, seems to have been one of seasonal transhumance, in which the Tubatulabal took advantage of a wide variety of resources as they became seasonally available over a large geographical area. Though the Tubatulabal population seems to have been concentrated in the South Fork Valley, the area Voegelin defines as "Tubatulabal territory" (see "Definition of Study Area") covers some 1300 square miles, and the whole area was utilized in the course of subsistence activities.

Population and Settlement Patterns

The highest population estimate given for the combined Tubatulabal and (related) Palegewan groups is 1000 members (Kroeber 1953). Voegelin says that Kroeber's estimate was too high and gives an estimate of 228 members for the Tubatulabal group and 65 Palegewans for the year 1855. This estimate is based on population estimates given her by informants, for twelve Tubatulabal and three Palegewan village sites. This figure seems rather low for aboriginal times, and may represent a decimation of the group by epidemics of introduced diseases, or a drain on the population by the mission San Buenaventura (though informants denied the latter). The fact that not all existing villages (Ker-311, for example) were known to Voegelin must also be considered.

By Tubatulabal and historical accounts, 39 adult Palegewan and Tubatulabal were massacred in April 1863 by U.S. militia, near Keyesville. According to Voegelin's informants, only five of the adult males of these two groups survived. Voegelin estimates that adult males represented 20 percent of the group and so estimates the combined Tubatulabal/ Palegewan population in 1863, prior to the massacre, at 220 ((39 + 5) x 5).
A field census by Voegelin, in 1932, of Tubatulabal of full, one-half and one-quarter "blood" living both within and outside of the aboriginal area yielded a population figure of 145.

Permanent village populations ranged from two to six family groups each, "which were, in turn, comprised of the members of a single biological, bilateral family, plus one or two other relatives, such as widowed children or parents, or orphaned nephews or nieces. Sometimes a son and his wife or a daughter and her husband might also be included in the

household. The members of a single small hamlet were generally interrelated by blood, either matrilineally or patrilineally . . . . Families shifted their residence from one hamlet to another, often for very trivial reasons." (Voegelin 1938:4).

As stated under "Subsistence Patterns", subsistence pursuits entailed an appreciable amount of seasonal settlement movement. The semi-permanent villages described in other sections were generally situated either on the foothills that rim the valley of the South Fork of the Kern River, or on the floor of the valley itself. These villages were occupied primarily in the late fall, the winter, and early spring, when subsistence pursuits were less vigorous than at other times of the year. Ker-311, the archaeological site which we will describe in depth later in this report, is believed to be a representative of this type of semi-permanent village site.

In summer and early fall family groups moved higher into the mountains and often eastward, to fish, hunt and, primarily, to gather pinõns. Other groups might camp beside the river for communal fishing activities and gather in the South Fork of the Kern River Valley for rabbit drives, or in the San Joaquin Valley to cooperate with the Yokuts in antelope drives. Groups began, at this time, to harvest acorns from oaks growing near the semi-permanent villages. The semi-permanent villages were probably not wholly abandoned at this season, but fish camps and piñon camps were established at appropriate locations for various periods of time. Large groups - populations of several permanent villages - gathered at these times, and might camp in communal brush enclosures, or possibly utilize the communal ramada-type structure described here, under "Architecture". On certain festive occasions (as when visitors were present), the large brush enclosure might also serve as a sort of dance house, but no dance house structure per se existed. Individuals and family groups, during this period, undertook various foraging expeditions (i.e., salt collecting, hunting, piñon collecting), camping by themselves. These groups and individuals might be scattered throughout the whole 1300 square mile Tubatulabal "territory".

As the fall progressed, the tendency was for groups, large and small, to drift westward and to lower altitudes (if they were coming from the piñon camps), to enter into the mainstream of the acorn harvest. Acorn collecting was intense throughout the oak area, but might be particularly concentrated at camps in the Greenhorn and Paiute Mountains and at Poso Flat where, as one informant says, "the best ones come from . . . you don't have to work with them hardly at all to get them sweet." (Voegelin 1938:78).

Social and Political Organization

An informal council of old men from the various hamlets met to choose the Tubatulabal "chief". Neither the council nor the chieftanship was institutionalized or sharply defined. However, the chieftanship "entailed upon the man who held it certain judicial and administrative

duties, gave him a certain prestige among his fellowmen, and constrained him to observe certain rules of etiquette, none of which latter was, however, of a very onerous nature" (Voegelin 1938:4). Paternal or maternal blood relation to a former chief, character, ability, wealth, and age were considerations in the selection of a chief. Unless he "turned out badly", the chief's was a lifetime appointment.

The chief acted as an arbiter in any conflict, be it with other "tribes", between men fighting over a woman, or between quarreling families. He attended festivities and ceremonies, seeing that everyone contributed his share to the proceedings and delivering uplifting lectures to the public, and particularly to the youth. Another of the chief's duties was to admonish (and even order killed) shamans believed to be inflicting illness on too many people. The chief led his people when they joined the Yokuts for antelope drives, but did not direct them in other subsistence pursuits.

A clown/dance manager acted as a balance to the chief's office. His office was hereditary in the paternal line. The clown was present at fiestas and ceremonies, like the chief, but played the farcical rather than the serious role: he said and did what he liked, and if the chief was not fulfilling his roles, the clown was instrumental in ousting him from office. The clown also supervised mourning ceremonies (see "Rituals") and dances.

There was no form of land ownership of hunting or gathering places. Even non-Tubatulabal groups could hunt and collect in Tubatulabal "territory" without specific permission from the Tubatulabal. A house was owned by the builder until it was vacated, at which time anyone could take possession. Sweathouses were built by one or a few people, but used by all. A patch of wild tobacco (see Appendix I) was free to anyone's use until a woman started tending it; then the plants in the patch became hers, and she might mark the boundaries of the patch with sticks.

Shell money, traded from the Chumash in the Ventura area in exchange for tobacco and other goods, was a source of wealth, and was hoarded. Objects of value, such as certain foodstuffs, fine baskets, etc., had fixed values in standard lengths of strings of clamshell disks. These strings were also tendered in payment to singers and dancers at mourning ceremonies, as gifts to visitors, and as payment to "face washers" (see "Rituals"). Strings of clam shell disks changed hands in gambling games, and necklaces, bracelets and earrings were made from strings of the shells.

Special basketry jars were made for storage of clam shell disk money. "If a man possessed a large amount of this currency, he stored it, carefully coiled in long lengths, in sacks made of the entire skin of an antelope, mountain sheep, or deer. These sacks he hid in some well-concealed crevice on a boulder-strewn slope of the foothills, telling no one where his cache was situated. In event of sudden death, his wealth

remained hidden, unknown even to his relatives, who might search for it assiduously, but fail to find it. If, however, either in a wealthy person's lifetime or after his or her death, a relative or even a non-relative stumbled by accident on such a cache, it was 'finder's keepers', and the currency passed into new hands" (Voegelin 1938:3).

Though a son might save some of the shell money left after his father's death to help establish himself as a rich man, most of an individual's wealth was destroyed or given away after his demise. A man's bows and arrows, however, usually were not burnt, as "they were hard to make" (one of Voegelin's informants in Voegelin 1938:51), and a woman's mortars, metates, necklaces and baskets might, likewise, be saved by her relatives.

There was no form of moiety or clan among the Tubatulabal, though there was a strict rule of marital exogamy concerning one's relatives in maternal or paternal, descending or ascending, and collateral or lineal lines. Kinship was recognized for only two generations in either direction. Generally a man and woman agreed between themselves to marry, and some clamshell money was paid the bride's parents by the groom's parents. The bride's parents would then give the groom's parents presents of baskets. Residence of the new couple might be patrilocal, but this varied. Sometimes no money was exchanged. Upon occasion children were betrothed, or parents might arrange the marriage of their offspring without the prior knowledge of the parties involved. Occasionally parents were not informed of the marriage until after their children considered themselves married. Generally arrangements were rather informal, and no formal marriage ceremonies are mentioned in Voegelin's ethnography.

Division of labor was practiced along lines similar to those of most hunting and gathering groups. Fishing, hunting and obtaining salt were men's work. Women participated in a minor way in large scale fishing and hunting activities (such as corralling and rabbit driving). Men skinned the kill and packed home the meat. Women generally dried the meat and fish for storage. Women procured wood and water for cooking, but it was men's work to start the fire. Women gathered and prepared vegetable foods and manufactured salt from salt grass and sweets from cane. The piñon harvest was a joint effort by men and women, men climbing the trees to knock down cones and tending the fires needed to open them, women gathering the cones and making the brush bed for roasting, both working to take the nuts out of the cones. Old men, meanwhile, might do some trapping of birds and woodrats.

Deer were plentiful at the acorn grounds, so adult men hunted while women gathered acorns, which fell from the trees without having to be knocked down. It was exclusively the woman's job to pound acorns, piñons, and other foodstuffs, and this was considered the hardest part of her work. Tobacco tending and pruning (see Appendix I) was ordinarily women's work, but old couples might work at this together. Only women pounded and "cooked" tobacco. In house building, men collected and set

up the framework of the structure, while women collected and constructed the tule and mud outer covering. In general, Voegelin says, "Men performed the more strenuous, but often irregularly recurrent tasks; women's labor involved a daily routine of duties that were time consuming, but less strenuous than those of the men" (1938:2).

Material Culture

As housing and some tools and trade goods are mentioned elsewhere, the description of material culture given here consists only of a listing of some items of the Tubatulabal inventory which may appear in the archaeological record.

Basketry items comprised a large proportion of the Tubatulabal inventory. Water bottles, packstrap caps and packstraps, a wide variety of food processing wares, money jars, burden and storage baskets, mats, fish traps and nets were only some of the twine and basketry items manufactured.

Tule rafts were made for use as fishing boats, and willow cradles were made, to carry infants.

Clay obtained from the floor of the Valley of the South Fork of the Kern was used to manufacture crude coil pots, which were used for boiling some foods. The manufacture of these had died out by the time of Voegelin's ethnographic studies, but one of the older informants reported their manufacture by her grandmother. Children made small animal and human figurines of clay.

Necklaces, nose plugs and earrings of shell (and later of glass beads) were worn by women.

Obsidian and various quartzites were used as materials for some tools. These included knives of various lengths, and spear and arrow points. Shaft straighteners were made of a soft stone, possibly steatite, noted as being obtained near Chimney Canyon (Voegelin 1938:29). Awls, used by both men and women, were made from the metapodials of a deer (men) or the spine of a cactus (women). These were surmounted by lumps of asphaltum, which protected the hand during use of the tool.

The scraper was made of a deer metapodial. The fire drill was made from a stalk of Baccharis glutinosa. No adz, wedge or maul was reported by Voegelin's ethnographic informants.

The bow was of juniper and was sinew-backed. The bow string was a three-ply sinew cord.

The arrow consisted of a hard-wood foreshaft set in a cane mainshaft. The arrowhead was set in a split in the end of the foreshaft. The fishing harpoon consisted of a pole seven to eight feet long headed by a

pair of six inch long foreshafts, on which were set one and one-half inch long barbed deer-bone toggleheads. Compound fishooks, consisting of a deer bone barb attached to the shank bone of a deer, were used.

Asphaltum and pitch were used for various purposes - setting tools into handles, welding the parts of a hook together, securing hopper baskets to mortars, and waterproofing baskets, moccasins and twine.

Architecture

The type of shelter used by the Tubatulabal varied according to the season of the year and the activities current with the season. The semipermanent dwellings in which the Tubatulabal lived during late fall and winter, while settled in the established villages, were circular, dome-shaped structures, eight to ten feet high and about twenty feet in diameter (for a family group of five to six people). Each family had its own house. The floor of the house might be excavated to six to twelve inches below the ground surface. Willow poles two inches in diameter were stuck in the ground about three feet apart, to form a circle. The tops of the poles were bent in and attached to a willow hoop about two feet in diameter, which would serve as a smoke hole in the completed dwelling. Willow bands and brush, or sometimes tule mats, covered the structure, which might finally be plastered with a coat of mud. Doorways faced east, toward the morning sun. There was a shallow fire pit in the center of the house, under the smoke hole. Cylindrical heaps of earth were piled up to serve as pillows for tule mat beds. A house of this design stood for two or three years, and was owned by whoever built it, until it was vacated, at which time it could be possessed by whoever wished to live in it. Separate menstrual huts were not known.

Around 1900, rectangular, gabled houses with partitions and fireplaces were being built. The ground plans of these structures were non-aboriginal, but native materials were used in construction. By 1930, most Tubatulabal were living in one-room frame shacks during most of the year. Adobe brick houses were also built upon occasion.

Aboriginally, various less permanent structures were built during the summer, as protection against the sun and shelter from the wind. These were elaborated to various degrees. The basic form had a four-post construction, with two end beams. Piled brush formed a shading roof. Women worked under these "ramadas". Another form of the same construction, taller, and elaborated by the addition of back and sides, was used as summer shelter by whole families. One informant remembered having seen a long, rectangular structure of this type in communal use by several families during fiestas in the Palegewan area. The women of each family cooked at a separate fire in front of the east-facing, open part of the structure.

When large groups of Tubatulabal were at the piñon grounds in summer they might camp and keep supplies within a brush enclosure thirty to

fifty feet in diameter and three to four feet high, individual families eating and sleeping as units. This type of structure was also used on ceremonial occasions, visitors from various places being assigned camping spaces within the enclosure. Dancing was done around a fire, which was built in the center of the enclosure.

Piñon cache structures were also built at the piñon grounds. This type of structure consisted of a rock-lined pit two and one-half feet deep and five feet in diameter, dug in the floor of a natural rock shelter. Loose piñons were placed in the cache and covered with large stones, or grass and small stones. During the winter men packed home nuts from these caches.

A sort of tent, made by leaning poles against both sides of a horizontal tree limb, was used by single families on gathering expeditions, for storage and for shelter in case of rain. Men hunting deer in the mountains utilized natural rock shelters as camping places. Women built brush walls four to six feet high around bedrock mortars, as summer work shades and perhaps as protection from winter winds.

Elevated acorn granaries with square, four-post construction were built for use in storage of acorns cached at acorn grounds. Acorns gathered near the villages were cached at the villages, in smaller caches of the same type.

A sweat house, which was not built at every village or camp, was usually excavated near a spring or stream. The circular excavation was about four feet deep and fifteen feet in diameter. Forked poles seven and one-half feet high were lined up across the pit, and a ridgepole the same length as the diameter of the pit rested in the forks of the uprights. Smaller poles were then leaned against both sides of the ridgepole and the whole structure was covered with brush and earth. The open door faced south, in line with the center pole of the house, and was connected to the floor of the house by a sloping runway. A fire was built at the foot of the runway. As many as thirty bathers could be accommodated in this sweat house, seated in a circle around the inside of the house. Both men and women bathed frequently, jumping into the artifically-created pool of cold water associated with the sweathouse (relationship in location unclear), after the sweat bath.

To summarize, housing forms were variable during the warm months, when groups and individuals moved about extensively. A single variety of more permanent housing was built during the winter months, at the semi-permanent village sites. It is possible that some people (such as the very young and the very old and those who were collecting foodstuffs near the village) stayed in the semi-permanent villages all year round, living in the winter structures but building summer structures for work activities such as seed grinding.

Ritual

By 1932, most rituals had dwindled and been considerably simplified in practice, among the Tubatulabal. Aboriginally, however, a number of minor ritual practices and at least one major ritual were undertaken regularly. Minor ritual practices ("magics") such as the speaking of a formula or singing of a song were applied to hunting (for luck), to weather (for control), and in various everyday circumstances. Certain occurences were believed to forecast or ordain events or to be omens for good or evil.

Anyone past puberty could undertake a vision quest by the ritual drinking of a jimson weed (Datura metaloides) decoction. Other rituals included the mourning ceremony and the face washing ceremony. Of the three, the mourning ceremony was the most elaborate ritual, and the only one with which we shall deal in detail here.

Some (unregulated) time after a death, a face washing ceremony was held. The mourning individual payed another individual to ritually wash the mourner's face, symbolically cleansing him of the restrictions (particularly dietary restrictions) placed on him at the time of a relative's death. Once the face washing ceremony had been completed, relatives of the deceased were free to hold a mourning ceremony. A mourning ceremony was not always held; if none were planned, the dead person's possessions would be buried soon after the interment of the body. (Burials, incidentially, were isolated, in no specific location, but near the village).

Mourning ceremonies were usually held in July or August and lasted seven days. Guests, including visitors from other tribes, were invited to "the fiesta". The dance manager (clown) ordered some boys to make a brush enclosure inside which guests would camp and in which dancing would be done. The fiesta was initiated by the dancers and the dance manager, who demanded and received payment from the chief mourner during a short dance within the enclosure. This mourner (with the help of his relatives) also supplied food for all the guests. At night men sang and rattled split-stick rattles and men and women with painted faces danced, holding the dead person's clothing and wailing. Others watched, slept, or played handgames. The dancing continued for five nights, while various games were played during the day. Also during the day, the dance manager and the chief might go about the camp exhorting the people to dance, and giving speeches. On the last day of the ceremony, a tule image of the dead was made by the chief mourner, and it was burned along with most of the dead person's possessions. A feather wand, which was always carried during the ceremony, was burned with the dead person's possessions. Finally, loose clam shell disks, foods and other goods were strewn about among the guests. It was essential either to burn or to bury the dead person's possessions so that he would have them in the afterworld. If enough of the possessions were not destroyed, the ghost of the deceased would come back from the dead in search of them.

We shall not deal with shamanism, witchcraft, or curing and religious beliefs here, except to mention that there were good and bad shamans, with powers to inflict sickness or to cure, and that there were also weather shamans, bear shamans and rattlesnake shamans, with various functions.

Trade and Exchange

Adults, in couples or in small groups, took frequent trips outside the home area. The Tubatulabal might travel as far east as Randsburg, in the Mojave Desert, as far south as Tejon, in the Tehachapi Mountains, southwest to the Chumash villages at Ventura, on the Pacific Coast, and west to Tulare Lake, in the central San Joaquin Valley.

Trade with the Chumash was particularly important for the Tubatulabal, as it was from them that the Tubatulabal obtained clam shell disks, the standard currency. Piñon nuts were exchanged for shell cylinders (snail columellae), Olivella shell beads, and probably steatite, by means of silent trade. Every item had a set value in lengths of strung clam shell disks, and bargaining was not practiced. Tubatulabal collected lumps of asphalt on the beach, during trading trips to Ventura. Shell money and certain varieties of acorns might be obtained in trade with the Yokuts.

Among themselves and with the immediately adjacent groups (i.e., Palegewan, Koso, etc.), the Tubatulabal exchanged piñons, balls of tobacco, acorns, chia seeds, fine baskets, yellow-hammer quill bands and, in fixed amounts for each trade item, shell currency. Toward the end of winter deer meat might be much in demand.

III. Environment: Geology, Hydrology and Climate

Following is a brief description of the geomorphology, geologic history and climate of the Kern River area, presented here to provide the reader with a general view of the environmental backdrop of the study area.

" . . . /the Sierra Nevada's/ broad western flank is scored by deep canyons through which run a series of great rivers /of which the Kern is one/ fed by the rains and snows extracted from the prevailing westerly winds by the long, high mountain ridge. . . . /The rivers'/ ancestors occupied similar courses during the earlier Tertiary, but filled their channels with gravel and were diverted from them by volcanic outbursts and perhaps other processes. The gravels have been preserved locally by a capping of volcanic rocks, and have been studied frequently because of their gold content" (Reed 1951:16).

Antimony, copper, clay, limestone and, particularly in the district in which archaeological Site Ker-311 is located, tungsten, are the principal mining products of the study area (Tucker, et. al. 1949; Troxel and Morton 1962).

"The Sierra Nevada is of comparatively recent origin, being comprised of ancient rocks which have been tilted and uplifted into a lofty block range. Granite intrusions later occurred and have been exposed by erosion. Metamorphosed sedimentaries and volcanics, which are the remnants of two older mountain ranges, are found in isolated areas. The rocks of the Kern River basin in the vicinity of Lake Isabella are principally of those granites with occasional remnants of older metamorphics. The North Fork of the Kern River parallels, but does not occupy the trace of a prehistoric but now inactive rift known as the Kern Canyon fault, which probably influenced present topography of the region" (House Document 513 1944:16).

"Kern River is the most southerly of the major streams flowing into the San Joaquin Valley. It drains an area of approximately 2400 square miles in the Sierra Nevada. The headwaters of the river consist of two main forks. The North Fork, the larger of the two, rises at an elevation of about 13,500 feet and flows almost due south for 83 miles to the town of Isabella. The South Fork rises at an elevation of about 11,500 feet and flows in a southerly direction along the eastern edge of the watershed for 67 miles and thence westerly 15 miles to join the North Fork near Isabella at elevation 2500 feet" (ibid above: 14).

"The upper or northerly portion of the South Fork Basin drains a high but less rugged area /than the North Fork/. Mountain slopes are less abrupt, stream gradients are flatter, and the canyons are relatively shallow. The area is characterized by numerous long meadows separated by short reaches of steep canyon. Easterly and southerly of the main South Fork Valley, the drainage area is desert-like in character, and

the mountains are lower and well rounded by erosion" (House document 513 1944:15).

"Both the Kern and the South Fork . . . /flow/ upon expansive and far extended flood plains and their confluence occurs upon a common flood plain. This flood plain strewn with boulders and gravel extends north up the Kern for a distance of over ten miles from Isabella with a breadth diminishing from a mile and a half to a few hundred feet. Up the South Fork to the east it extends for probably fifteen miles, with a width in its lower part of over a mile. But here the flood-plain silts and sands mantle the stream gravel in large part and make agricultural land" (Lawson 1906:399).

". . . the middle elevations of the North Fork basin are heavily timbered. The southern and eastern portions of the watershed are relatively dry and vegetative growth is generally confined to juniper and sagebrush. The foothills are covered with a deep mantle of residual granitic soils broken by occasional rock outcrops. Vegetation consists principally of native grasses. The soils of the /South Fork/ valley are alluvial sands and silts which are in general excellent for agricultural purposes" (House Document 513 1944:16).

"The southernmost of the Sierra Valley Glaciers lay in the Kern River canyon. During the earlier glacial stages, the ice overflowed the canyon onto the surrounding bench lands which are parts of old valleys generated before the last elevation of the range. The glaciers of the last stage seem to have been confined to the Kern Canyon and its tributaries" (Hinds 1952:30).

Data on environmental history specifically relating to our study area is sparse, but it is known that the glacial epoch culminated some 50,000 years B.P. (before present) and that the glaciers were in retreat by 25,000 years B.P.

The Valley of the South Fork of the Kern River has an annual mean maximum temperature of 75.5°F and an annual mean minimum temperature of 51.2°F. The highest temperature (average over 30 years) was 111°F. The lowest temperature (average over 30 years) was 11°F. The average annual precipitation in the desert foothills is 6.31 inches, and 11.34 inches on the mountain slopes. There may be as much as 40 inches of precipitation per year in the high mountains (Gilbert and Peterson, 1967).

In the South Fork Valley, a light wind often causes a pool of cold air to form on the valley floor, while the surrounding slopes two hundred to five hundred feet above remain much warmer. Snowfall seldom occurs below three thousand feet elevation, and the maximum snowfall occurs at about seven thousand feet elevation (Reed, 1951:8).

Previous to the construction of the Isabella Dam, short-lived floods of relatively low volume occurred fairly frequently on the Kern River, as

the result of winter storms. Late spring floods were more damaging, with flood waters flowing for as long as three to four months. These often flooded the South Fork Valley and even threatened Bakersfield, in the San Joaquin Valley, at times. The dam has efficiently controlled floods, since its completion in 1953.

IV. A History of Land Use in the Kern River Valleys

Father Francisco Garces, in 1776, was the first non-Native American to discover the Kern River. Fray Jose Zaldivia encountered it in 1806. In 1834 Joseph Reddeford Walker, guide, explorer, and trapper, crossed the Kern River Valley. For three weeks in late 1845, a party of Captain John C. Fremont's third Western Expedition, led by the cartographer Edward M. Kern, camped at the confluence of the Kern River and its South Fork. Of his stay in the area, Kern says only that the hunters for the expedition were able to bring in only "a few small deer, the meat extremely poor" and that ". . . we became reduced to acorns, and on this swinish food made our New Year's feast" (Heffernan 1953:9).

The discovery of gold in the Kern River Valley vicinity by Richard Keyes, in 1853, marked the beginning of Anglo-European domination of the area. Non-Native American land use in the Lake Isabella area first centered around the unaugmented Kern River, rather than along the South Fork.

Gold mining was the first major land use in the area. Between 1854 (when it was founded) and 1860, Keyesville was the hub of activity. The meandering San Francisco - Los Angeles Trail brought prospectors, supplies and a few settlers to Keyesville. As quartz mining superceded placer mining, a stamp mill was brought to Keyesville. The town developed, and roads and industries serving the miners grew up as well.

In 1860, as the Keyesville area mines began to peter out, the discovery of the Big Blue ledge (a gold-bearing quartz vein) at the foot of Split Mountain provided the impetus for the founding of Quartzburg, Whiskey Flat and Millville (at the site of old Kernville) and shifted the emphasis of land use to this locale.

It was at this point in time that the fertile valley of the South Fork of the Kern River began to undergo the impacts of non-aboriginal use, as farms were established in response to the needs of the mining population. Other industries - breweries, a stageline and a sawmill - also sprang up.

In 1863, two stage men were killed by Indians in Kelso Canyon, but it is not known whether the killers were Tubatulabal or of other groups. In the same year, thirty-nine unarmed Tubatulabal and Palegewan men were massacred near Kernville by soldiers from Owens Valley, under the command of Captain Moses A. McLaughlin, in "retaliation" for killings of miners by Indians in Owens Valley (in which the Tubatulabal were adamantly uninvolved). In the histories, little is said of Indian-Anglo contacts after this time, except that some Indians made a marginal living by working on ranches or farms in the area.

In 1864, gold was discovered on Cross Mountain, and as Whiskey Flat became the respectable town of Kernville, Havilah, further down the

Kern, became the hub of mining activity. In 1866, Havilah was designated the county seat of the newly established Kern County.

By 1870, the towns of Sageland, Weldon and Onyx had grown up. Floods in 1861-62 and 1867-68 had widened the Kern and its south fork considerably, but farmers, ranchers and cattlemen were firmly entrenched in the valley by this time.

In 1872, with Havilah succumbing to the effects of the impoverishment of the local mines and giving up its mining population to the settled agricultural life of the San Joaquin Valley, Bakersfield became the seat of Kern County.

While mining activity declined, the ranching industry grew. Pasture fields were cultivated and, the cattle industry reigning, sheepmen were driven out. Stores with credit and delivery services were established by the A. Brown Company all along the South Fork and the Kern Valleys.

By the 1880's, community life was well established. The majority of the Native Americans left in the area had, by this time, been at least partly assimilated into non-native culture.

According to Ardis Walker (1938:15), "Between the time when the county seat was shifted to Bakersfield and the turn of the twentieth century, when the automobile and power interests arrived simultaneously, life on the Kern continued to be permeated with a pioneer atmosphere."

". . . ranchers continued to settle along the South Fork of the Kern River. The population fluctuated during the depression years, many families left the valley to find work elsewhere." (A.O. Suhre 1971: unpaginated). There was a new population influx, however, with the initiation of the Kern River Dam project (1948-54), and the subsequent creation of Lake Isabella.

Lake Isabella flooded the confluence of the Kern River and its south fork, a segment of the Kern River (with the old towns of Kernville and Isabella) and a large portion of the Valley of the South Fork of the Kern, almost to the point at which the river descends from the surrounding mountains. Pasture and farm land, and many archaeological sites, were inundated.

While specific population estimates for the Kern River Valleys are not available for the years prior to 1970, county population estimates can, perhaps, give us an idea of the area's population growth. These are as follows:

Year	County Population	Year	County Population
1870	2,925	1920	54,843
1880	5,601	1930	82,570
1890	9,808	1940	135,124
1900	16,480	1950	228,309
1910	37,715	1960	291,984
		1970	330,513

Populations of the Kern River Valley and surrounding mountain area, and for the Isabella Lake area in 1970, were 8246 and 5475, respectively. Populations in 1980 are projected at 10,800 and 7000, respectively. Visitor days in the area (1 person/12 hours) totaled: 4,566,210 from 1954 (when Lake Isabella was created) through 1960; 12,304,010 from 1961 through 1970; 5,339,168 from 1971 through 1975.

Tourism and recreation are major industries in the Kern and the South Fork areas. "Income producing activities in the Kern River area also include the raising and processing of agricultural and livestock products, the production of petroleum and other minerals, and a limited amount of manufacturing" (House Document 513 1944:18). Agricultural products include grapes, cotton, potatoes, alfalfa hay, sugar beets, deciduous fruits, citrus and (in non-irrigated area) small grains. The area is widely advertised for fishing, hunting, boating, water sports, camping and other recreational uses. The flooding of the valley satisfied the need for flood control and created water reserve for irrigation, as well as creating a major recreational resource.

V. A History of Archaeological Activity in the Kern and South Fork Kern River Areas

The first documented piece of anthropological work in the Kern River and South Fork Kern River areas was undertaken in the summers of 1931 through 1933 by Erminie Voegelin. Though the first explorers in the region had mentioned the native inhabitants and described activities and aspects of culture upon occasion, none of these accounts dealt in any detail with Tubatulabal culture. Explorers tended to speak derogatorily and briefly of "Diggers" living in flimsy huts on a meager diet of acorns. Voegelin, on the other hand, spent several summers interviewing Tubatulabal and part - Tubatulabal informants for their accounts of native culture and their cultural memories. From the information derived from these conversations, Voegelin constructed an ethnographic account of Tubatulabal culture, including much which can be of use to the archaeologist. In the process of her work, Voegelin collected place names and locations of eighteen Tubatulabal, Bankalachi and Palegewan "hamlet sites". Charles F. Voegelin, Erminie's husband, was involved with Tubatulabal culture during the same period, and collected a great deal of information from native informants about Tubatulabal mythology and language.

The first survey of the valleys of the Kern River specifically for the purpose of archaeological site reconnaissance, was made in 1947 by archaeologists from the University of California, Berkeley, working for the Bureau of American Ethnology. Aware that a large part of the area would be inundated by the lake to be created by the Isabella Dam (the construction of which would begin the following year), the archaeologists surveyed seventeen square miles, discovering fourteen archaeological sites (Fenenga, 1947). Three of these were deemed important, and the report of the survey urges that they be excavated or preserved in some way but, to our knowledge, no excavations were ever completed.

In the next year, F. A. Riddell and others (of the University of California, Berkeley) recorded twelve additional sites in this area. These and the fourteen sites previously discovered were surface collected, and the artifacts found were catalogued (UCAS ms. 70, various authors) and stored at U. C. Berkeley (acession #6, California Archaeological Survey). All of these sites had, by this time, been given state numbers (4-Ker-1 through 4-Ker-26) and plotted on topographic maps.

Mr. J. Dron, amateur archaeologist in the Southern Sierra area, recorded the locations of ten archaeological sites in the study area, in 1924-25 (UCAS ms. 378). Five of these sites were assigned numbers in the state site catalogue, in the 1940's. The remaining five had been re-discovered and recorded by this time.

Various small-scale surveys and incidental discoveries added twenty-eight sites to the official record by 1953. By this time, water behind the Kern River dam had risen enough to cover a number of sites in the

valleys (Schiffman 1976b). To our knowledge, thirteen sites in the Lake Isabella area have been added to the state records since that time.

Under a contract by the Army Corps of Engineers to survey Corps lands in the Isabella Resevoir and adjacent areas, Robert Schiffman of Bakersfield College, California, between September, 1975 and January, 1976 discovered twenty-six sites previously unrecorded in the state records (which, incidentally, have not yet been given state numbers). Schiffman was aided in his work by the fact that the resevoir was very low, due to the effects of a dry year. His survey was much more thorough than previous surveys had been. In his report (Schiffman 1976B), Schiffman classifies sites according to their type, their condition, and their potential research value. Schiffman, incidentially, is now collecting and assigning state numbers to all reports on newly discovered sites in Kern County. Ker-311, the site on which this report focuses, was discovered by Schiffman in 1973, during a land exchange survey for the Bureau of Land Management.

The only archaeological excavation in the areas of the Kern River and its south fork with which we are concerned, is that undertaken by crews from Fresno State College, in 1971. Several excavations were undertaken on sites near Delonegha Springs, in the Kern Canyon, beyond the area on which we are focusing. However, two other sites nearer our focus area, one of these possibly Ker-260 (no state numbers were recorded) were excavated at this time. Both of these were on Erskine Creek, one west of the point at which Erskine Creek enters the Kern River, the other in the town of Bodfish. The data from these excavations is sketchy and disorganized, and crew and leadership problems are reported in the existing field notes. However, Chuck James (now the Quincy District Ranger in the Plumas National Forest), who played a supervisory role in parts of the excavations, was able to provide the author with some data from memory. James, working with Dr. Dudley Varner (a professor at Fresno State) and Michael Baldricas (a student), hopes to organize and publish the data from these excavations in the near future.

The Bodfish site excavated by Fresno State was apparently one of Erminie Voegelin's ethnographic villages (#16). The second site, at the confluence of Erskine Creek and the Kern River, was protohistoric, and possibly the state recorded site, Ker-260. The remains of a large circular structure, with a central firepit, and indications of postholes around its perimeter, was discovered. This structure, possibly a pithouse, contained trade beads, so was presumed to be historic. The site had been highly disturbed early in the twentieth century by the use of a plowing implement (Fresno drag) across its surface. The remnants of an 1860's garbage dump were overlain by an overburden containing aboriginal materials. No other information on these sites was available.

There are some well preserved specimens of pictographs in the Tubatulabal region, but no comprehensive work has been done on the significance of rock art to the archaeology of the South Fork of the Kern River.

Though one pictograph site has been mentioned and illustrated in print (Grant et. al. 1968), little photographic recordation and no thorough inventory has been undertaken.

In summary, archaeological reconnaissance in the study area has been patchy, at best, and often haphazard. Large parcels of land in the study area have never undergone archaeological reconnaissance, and some projects (here Schiffman's, mentioned above, is definitely an exception) have been inadequately carried out. The only archaeological excavation that has been done in the area yielded data of poor quality, for whatever reasons, which has not yet been adequately organized for study, and which remains unpublished.

Only the ethnographic work done by the Voegelins in the 1930's, and what archaeological reconnaissance has been done prevent the Tubatulabal and our study area from being archaeological unknowns.

VI. A. Description of the Long Canyon Village Site, Ker-311: Field Reconnaissance, Study, Some Suggested Interpretations

4-Ker-311, the Long Canyon Village Site (see state site record for specific locational data), is an archaeological site on the south side of the valley of the South Fork of the Kern River, on a gentle slope above the town of South Lake. Approximately fifty acres in area, the site is bounded by two intermittent creeks, on the east and west. The site rests almost wholly on Bureau of Land Management lands (see land ownership appendix, on file Bakersfield Bureau of Land Management).

The features of the site are distributed in several loci, each of which contains a midden component. No auguring has been done on the site, but pothunter excavations at what appears to be the major locus indicate a midden depth there of at least twenty-four inches. (Note: Since BLM equipment, including transit, is scaled in inches and feet, the metric system was not used for this project).

Juniper (Juniperus californica) and Rabbitbush (Chrysophamnus nauseosus) predominate the vegetation at this site. Sparse perennial grasses Cholla (Opuntia sp.) and other typical semi-desert flora may also be found.

Faunal populations in the area at present include mule deer (Odocoileus hemionus), cottontail (Sylvilagus sp.), jackrabbit (Lepus californicus), bobcat (Lynx rufus), coyote (Canis latrans), fox (Vulpes fulva, Urocyon cinereoargenteus) and badger (Taxidea taxus). Numerous rodents include the antelope ground squirrel (Ammospermophilus sp.), pocket gopher (Thomomys sp) and woodrat (Neotomas sp.). Lizards of various kinds, and snakes, including rattlesnakes (Crotalus sp.), are also seen. A wide variety of waterfowl are common. Landfowl include quail (Lophortyx californica and Oreortyx picta), chukars (Alectous gracca) and mourning doves (Zenaidoura macrowa). (For further information on fauna and flora consult Voegelin 1938 and Bright 1970).

Located at an elevation of about three thousand feet, Ker-311 is above the snow line for the area, but since the area is quite arid (recieving only six to ten inches of precipitation per year), snow is not frequent or deep in the winter (see "Environment" for more information). In a dry year there is little or no water near the site; however, nearby springs may flow all year round in a year with normal precipitation and the spring in the canyon to the west of the site flows freely after about September. The South Fork of the Kern River (now in part inundated), running through the bottom of the South Fork Valley, is approximately one and one half miles from the site, to the north. The site provides an expansive view across the South Fork Valley, (see photos) and for intermediate distances up and downstream.

The Long Canyon Village site was discovered in the process of a study for a proposed land exchange, in 1973, by Robert Schiffman of Bakersfield College and Glen Wallace, realty specialist of the BLM (Bakersfield District). Herrick Hanks of the Riverside District BLM subsequently recorded and assessed the site, and briefly reported on it and its features (Hanks 1973). If we can rely on the accuracy of Hank's sketch map, site reconnaissance reveals extensive disturbance of some features on the site since 1973. For this reason, detailed mapping of the site's features and perimeters is essential. At this time, a map of the site's boundaries and of its features has been completed, but individual feature and photographs records are not yet complete.

Because of its location, of the presence of associated house structures, milling areas and midden, and of the resources available to the site, Ker-311 has been interpreted as a permanent winter village site (see "Ethnography").

Though there seems to be no mention of the site in the ethnographic record[1], evidence leads us to believe that the site was inhabited into historic times: One blue-glass trade bead was found during field study at the site. A study of beads found at the site (courtesy of Chester King) has yielded some temporal data: Probably the site was last occupied between 1780 and 1830. A determination of the site's antiquity would require excavation. Beads found at the site are on file in Bakersfield, at the BLM office.

All of the beads described in Appendix IV were found along the north side or inside of the large rectangular "structure" mapped as Feature 7. Shell beads were worn as ornaments, and shell cylinders (snail columellae) were used as money by the Tubatulabal. At mourning ceremonies (see "Rituals") beads and money were scattered about and presented to the mourners. The apparent concentration of these beads at this location, while perhaps only a function of more intensive study by field workers here, may indicate ceremonial use of Feature 7.

Feature 7 is notable in other ways than that above. There is no ethnographic record of features of this type in the Tubatulabal area, though Voegelin's ethnography records other structure-types in detail. This is the only site in this area at which a feature of this type has been

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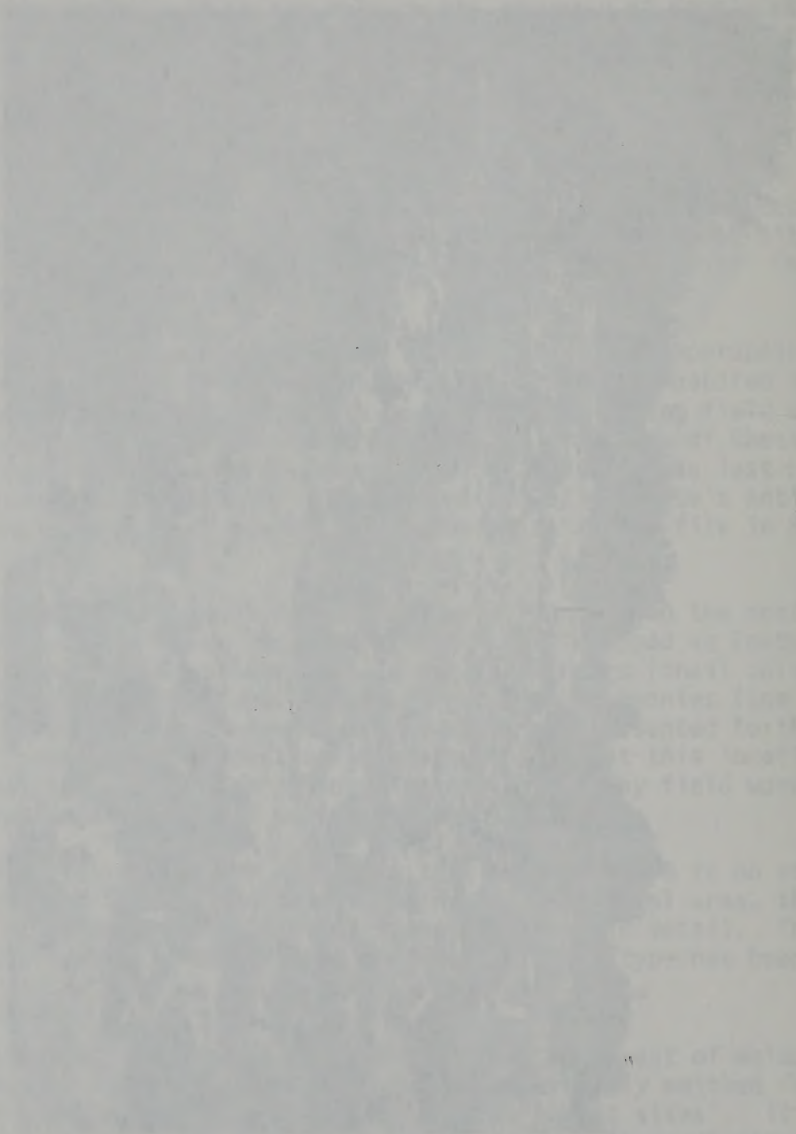
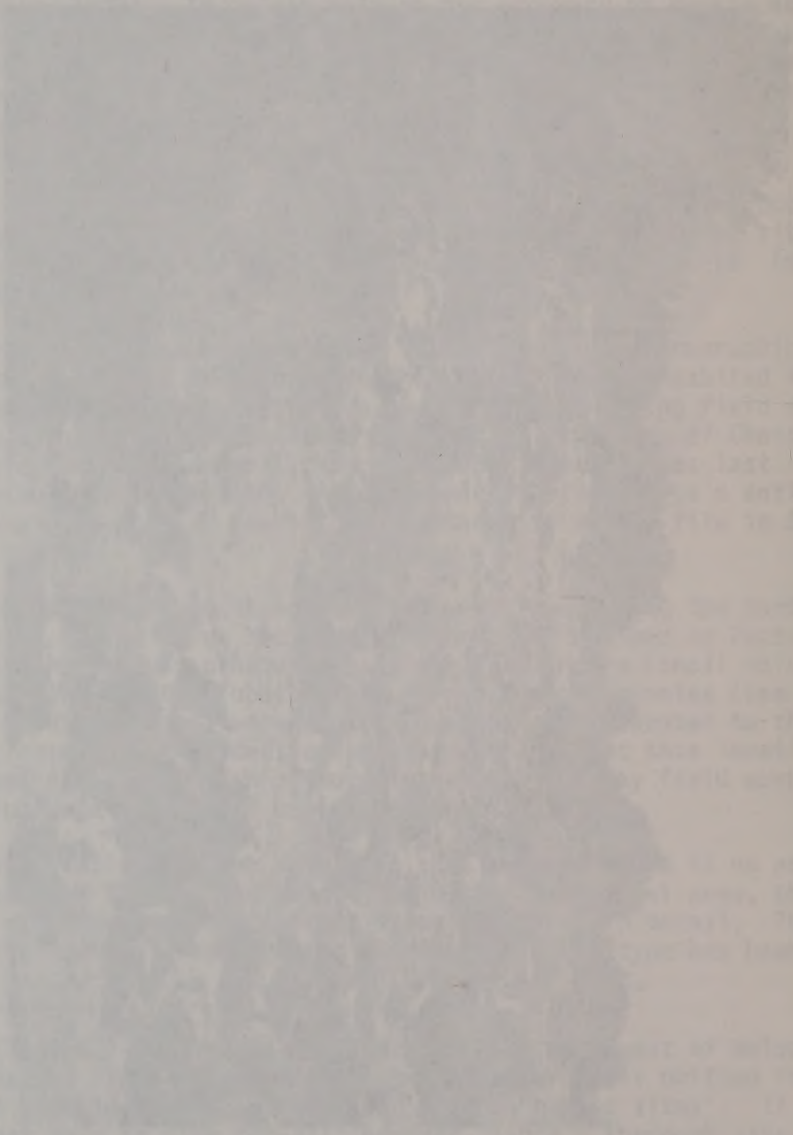
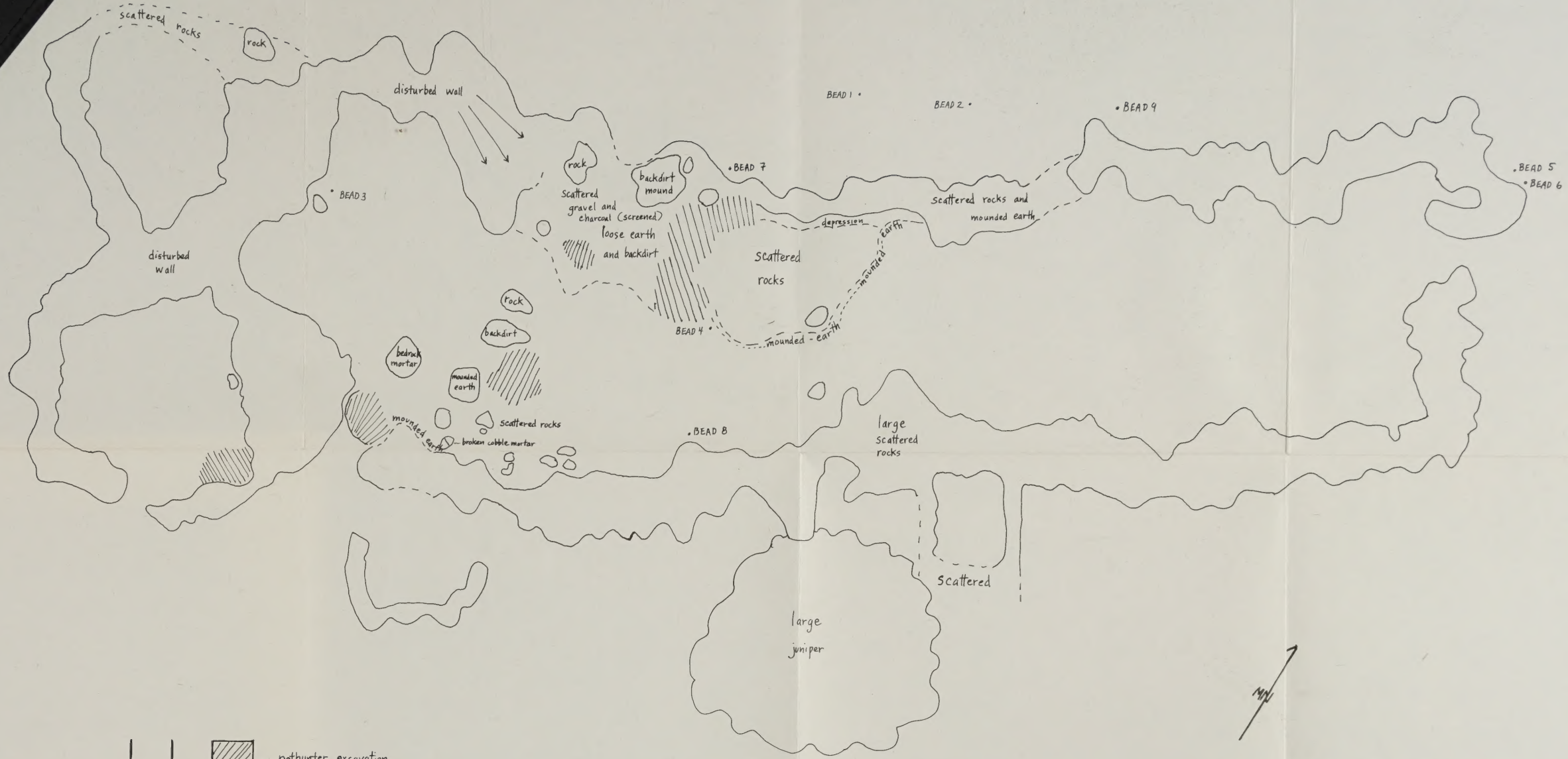
[1]Voegelin (1934:62) mentions a village site #19, southwest of Weldon, near Goat Ranch. This site apparently was inadvertently omitted from her list of site locations and from her map of "hamlet sites". It is possible that this is site Ker-311; however, since a thorough site reconnaissance of the area has never been done, it is possible that there is another site which has not yet been discovered, nearer Goat Ranch.

Feature 7, Ker-311. View from northwest end.



Ker - 311

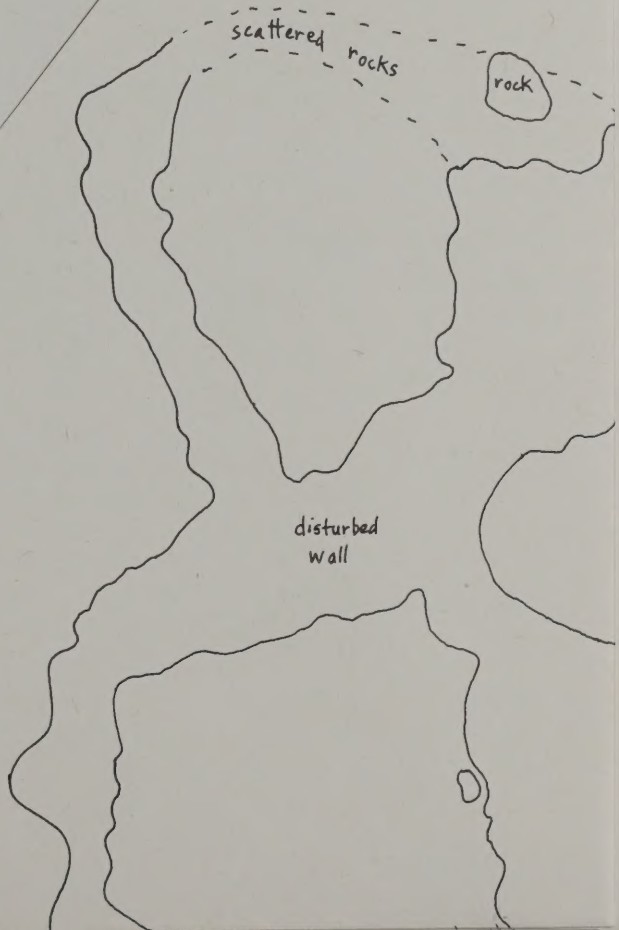




Bead numbers refer to Chester King's bead analysis : see Appendix IV

Map of Feature 7, 4-Ker-311

S. Salzman, B.L.M. August, 1976


scattered rocks
rock
disturbed wall

reported.[2] While, as noted before in this report, no thorough archaeological site reconnaissance has been made in the South Fork "winter village zone" of the Tubatulabal area and we can, therefore, make no sweeping statements with confidence, this feature type appears to be unique to this site. It has been suggested (personal communication, Robert Schiffman 1976) that this feature might be a political structure and this village, perhaps, a political center. Though ethnographic reports attribute rather informal political arrangements to the Tubatulabal, there was a "chief" position, and an informal "council" of old men, who selected and perhaps advised the chief. It is concievable that the chief lived in a house, in a winter village, which adjoined a larger "hall" in which councils could be held and groups could gather.

Another (perhaps corollary) possibility is that groups of people from the various winter villages gathered in the structure with groups from other villages, to talk over the preceding subsistence year, to socialize, play games, and listen to stories, and to discuss plans for communal activities in the coming year.

One more possibility is that this structure was built in historic times, after a European design but using aboriginal materials, as such a structure type is noted in Voegelin's ethnography (see "Ethnography")

Without further research, all of these interpretations are, of course, merely speculation. It is likely, to judge by its foundation, however, that the structure was built of aboriginal materials, and improbable, in view of the dearth of historic artifacts on the site, that the temporal setting of the structure was as late as 1900 AD. However, because of the extensive collecting by amateur "archaeologists" (pothunters) which the site has apparently undergone, we cannot rule out this last possibility, since historic artifacts may have been present at the site at the time if its original abandonment.

Other structures at Ker-311 are common in the rest of the Tubatulabal area. The site contains: approximately fifteen rock rings, commonly accepted by archaeologists as house or storage house "foundations"; three large and numerous small bedrock outcrops containing various numbers of mortar holes and grinding slicks, and sometimes circled by rock rings (foundations of weather-protective structures); at least thirty small rock rings, which may have been the remains of graineries (Hanks 1973).

The function of these last features is somewhat debatable. They appear to be of two types: 1) small rock rings on bedrock bases, with or without a few mortar holes and 2) small rock rings without bedrock bases.

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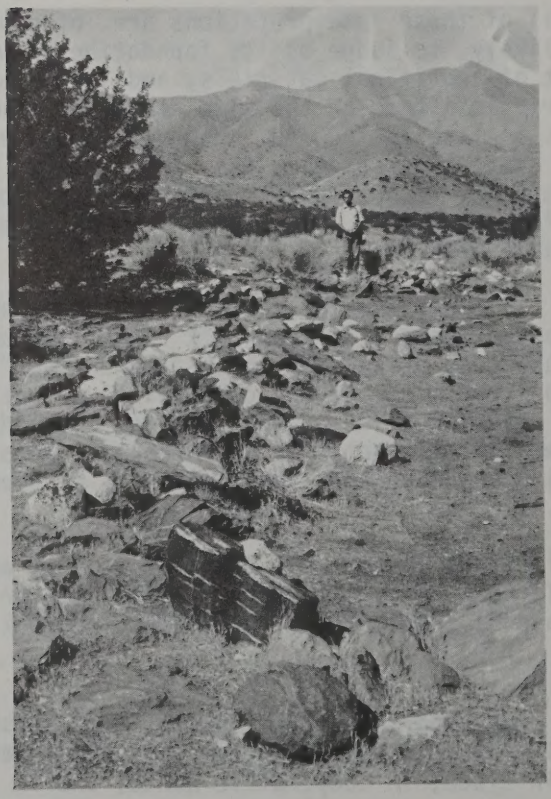
[2]This type of structure has been reported in the Yokuts area (personal communication Alan Garfinkel from Eric Ritter 1976). The Tubatulabal associated with the Yokuts in trade, in cooperative hunts, and in festivals, and the two groups shared some cultural traits. This raises the possibility that this structure-type was derived from the Yokuts.

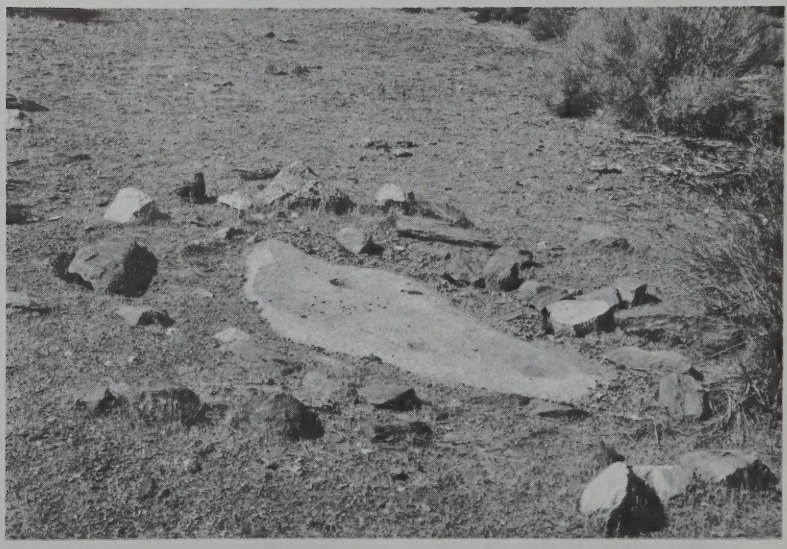
Above: Major pothunter disturbance along northeast wall of Feature 7, Ker-311.



Left: Southeast wall of Feature 7, Ker-311. View from east end.

Feature 2, Ker-311. Bedrock mortar complex with rock ring.

Feature 1, Ker-311. Bedrock mortar with rock ring.



Feature 4, Ker-311. Granery or tobacco processing unit.

Two "Graneries", 4-Ker-311. Camera lens cap, lower photo, shows scale.

Feature 5, Ker-311. House or storage ring.

Feature 6, Ker-311. Two adjoined house and/or storage rings.

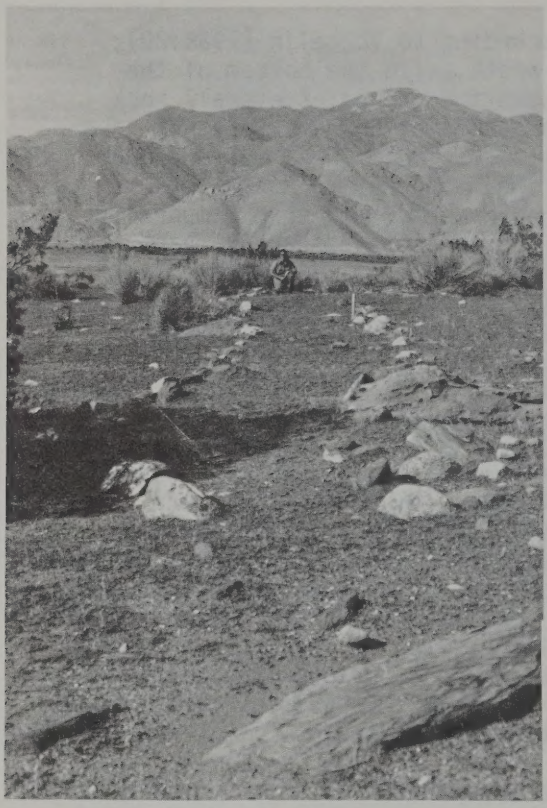
Since acorn graneries in this area, according to Voegelin (1938:20), were of the Miwok type, built on four posts, with the bottom of the granery elevated two to four inches above the ground, the small rock ring foundation is unexplained. Pinon caches, likewise, were not reported to have rock ring or bedrock foundation. These features may represent a variant type of the graneries described by Voegelin's informants, or it may be that the graneries described were temporally, seasonally, or areally different than the remains we see. Perhaps the bedrock bases of some of the features was a form of "rodent proofing" for the graneries. Another possibility, merely a speculation, is that some of these "graneries" may in fact have been related to tobacco curing. Since a number of the features contain bedrock elements with mortar holes, this possibility is tenable. Tobacco may have been cured and processed at these localities (see Appendix I).

Another feature of Ker-311 is a rock alignment (see photos), consisting of two parallel lines of rocks, approximately four feet apart and forty to fifty feet long. This alignment seems to lead "nowhere" and to define no structure. Whether this feature is aboriginal or non-aboriginal, even, is uncertain. It was not mapped as an individual feature, but has been located on the site map. It has been suggested that this alignment marked an aboriginal trail between village sites or areas (unidentified visitor to site 1976). No further suggestions for interpretation can be given at this time. A second rock alignment, consisting of a single, irregularly-shaped line of rocks has also been located.

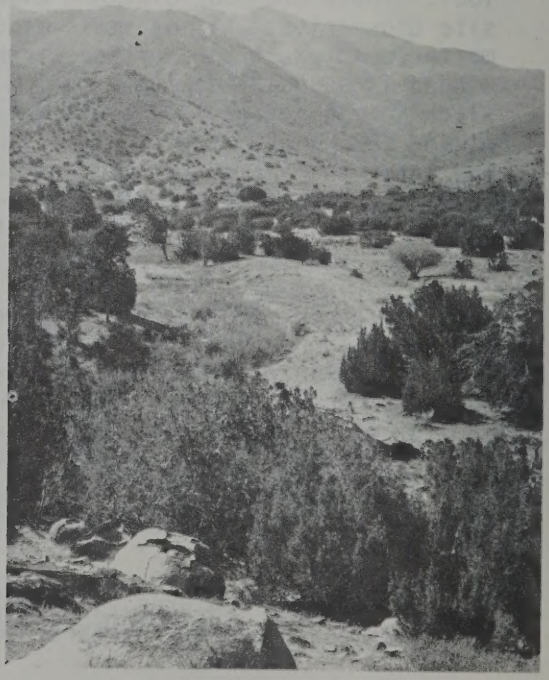
It is possible that this site could be interpreted as a series of site loci. There are four distinct midden components within the designated site boundaries: 1) one small midden area surrounds a minor bedrock mortar complex at the northeasternmost edge of the site; 2) another midden is associated with a medium-sized bedrock mortar and grinding slick complex at the southwestern corner of the mapped area; 3) a third midden surrounds a medium-sized bedrock mortar at the eastern edge of the southern part of the site; 4) the most extensive midden area surrounds what appears to be the densest feature concentration - a large bedrock mortar complex, a number of house rings and "graneries", and the large rectangular feature.

Possibly these midden loci, or other areas in which features seem to be concentrated, represent chronological or seasonal variations in habitation. The Tubatulabal settled in semi-permanent villages, seasonally, but according to Voegelin they moved around rather freely, a given family living in one place one year and another place another year. It is possible that the areal focus of the village changed from year to year, and this might explain the large area of this site comparative to the supposed population of these semi-permanent permanent villages - five to six families.

Concentration of features, particularly habitation features (as opposed to graneries or bedrock mortars, for example), extent of midden and size



Rock Alignment
4-Ker-311 (left)



Spring to west of site (right)

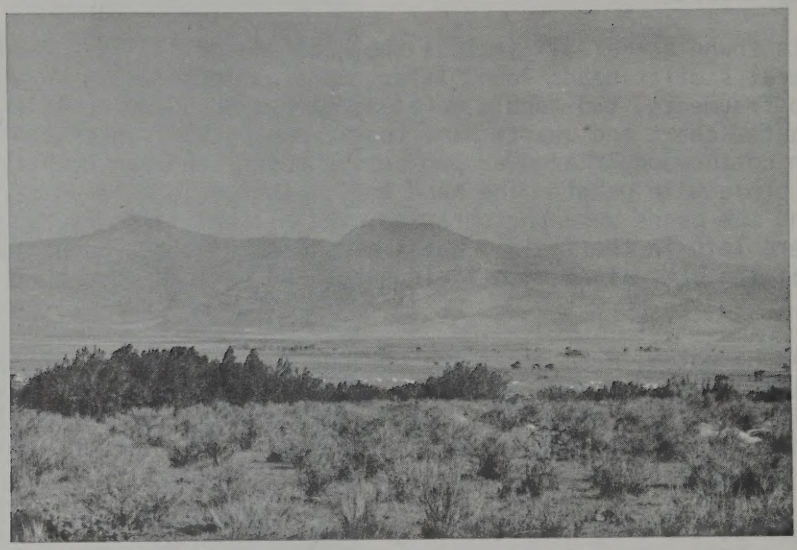
of the bedrock mortar complex may signify repeated use of the most extensive midden/feature concentration area described above, while the other areas may not have been used every year, or in the same years. It should be noted that the northern area of the site is significantly less disturbed by pothunting than the southern parts of the site. However, midden in the second and third loci has been significantly disturbed by erosion.

Artifacts found at Ker-311 include the beads described in Appendix IV and several similar beads found later, numerous pestles, several manos and mano-fragments, two cobble metates, rather abundant obsidian flake-waste, a few chert and quartz hand tools, one basal fragment of a small obsidian Cottonwood Triangular projectile point, and one Desert Side Notched projectile point. The hand tools, the projectile point fragments and the beads were photographed, and all artifacts except the beads were left in the field. Beads are on file at the Bakersfield office of the BLM, along with field notes and various photos from this project.

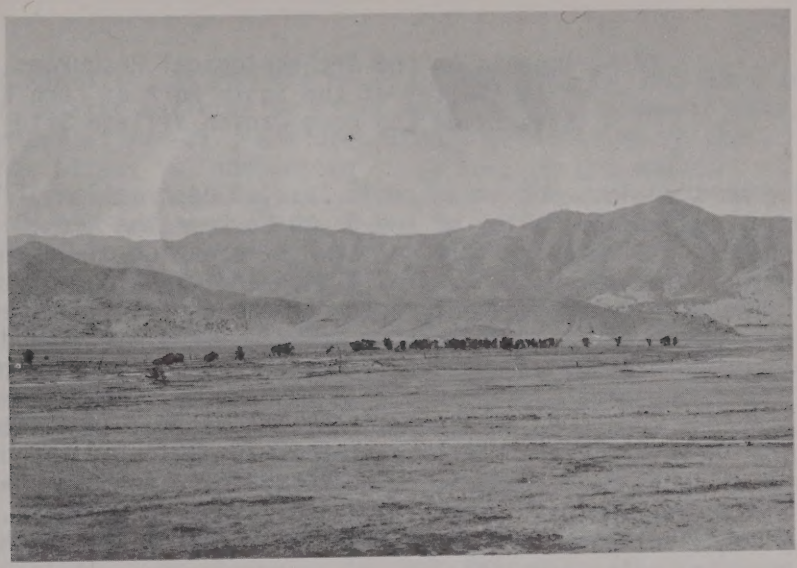
It should be noted, here, that the presence of the two "late" period projectile point forms on the surface of the site may indicate a rather late cultural link between the Tubatulabal and cultures of the desert areas to the east. No conclusions, or even reliable speculations, can be made on the basis of such scanty evidence, however.

Field work at the Long Canyon Village Site took place between June and October of 1976. Site-protective measures, including unobtrusive signing and the construction of a boulder road-block across the main road into the site, were instituted. In the main, the remainder of the field time was spent in mapping and recording features of the site, and mapping the site itself.

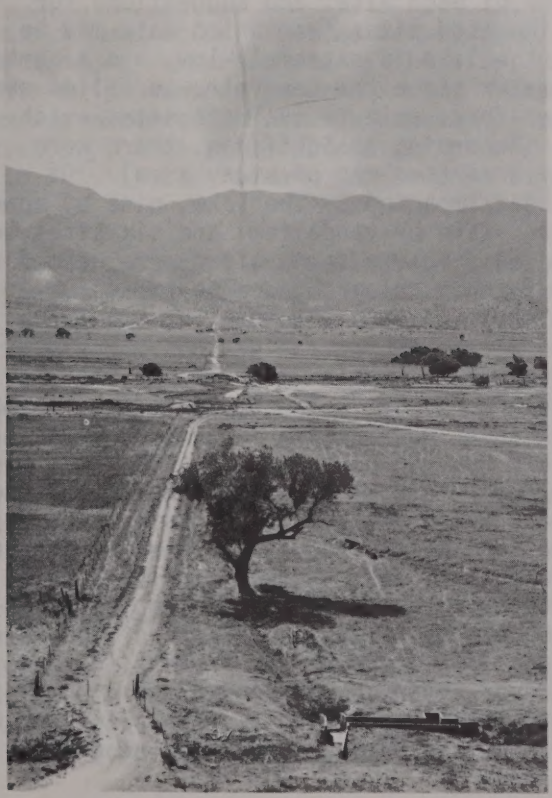
Since this last was an extremely time-consuming process, it was decided that first priority must be given to mapping what were considered the major features of the site (the rectangular structure in the main feature concentration area, and two large bedrock-mortar complexes) and representatives of each of the other types of features - house and storage-house rings, and "graneries". It is hoped that the mapping of Ker-311 will serve as a less-detailed mapping for features of the site which were not mapped during the preceding field work.



View from Long Canyon Village Site, Ker-311, northwestward across Valley of the South Fork of the Kern. Note water line on hill at far right center of photo, and present (drought) level of Lake Isabella (far left center of photo). Distant line of trees at center of photo follows normally flooded course of South Fork of the Kern River.



Above: View southward across South Fork Valley. Distant line of trees marks course of South Fork of Kern River.



Left: View southward across South Fork Valley toward vicinity of Long Canyon Village Site.

IV.B. Impacts on the Archaeological Resources of the Valley of the South Fork of Kern River: Effects on the Long Canyon Village Site

The most obvious and broad scale case of destruction of archaeological resources in the Valley of the South Fork of the Kern River is the inundation of sites resulting from the creation of Lake Isabella. The surveys undertaken in the pre-lake period revealed only fourteen sites in the Kern River Area before construction of the dam began, and only thirty-four more before the dam was completed. Five additional sites were recorded through the use of notes on a 1924-25 reconnaissance (Dron 1925). The data on many of these records is sketchy, even as to exact location. Though an occasional test pit was dug, no systematic excavations were undertaken prior to the construction of the dam. Many sites were innudated by the lake or destroyed by water erosion as the water levels rose and fell, over the years. Others, possibly, were destroyed by road construction when portions of the highways which were to be inundated were relocated.

Schiffman's 1975-76 study of Army Corps of Engineers lake and lakeside properties in the South Fork and Kern River Valleys (Schiffman 1976) provides an excellent profile for sites on these properties, including locations of all sites, condition of each site, and suggestions for mitigation of impacts on those impacted sites from which data may be salvageable. After a dry year, the lake is extremely low, and a number of sites which have been under water since the resevoir was filled are now exposed. Schiffman was, therefore, able to evaluate sites which have been impacted by the lake. According to Schiffman, there were forth-six sites within his study area (see map of study area). Of these, twenty-seven sites have been impacted by the lake, nine by roads, farming, etc., six by campgrounds, five by vandalism, and six sites were unimpacted or only slightly damaged. Thirty-seven sites were deemed to have little or no potential for further research, due to excessive damage, and nine were deemed to have research potential.

We must bear in mind, however, that Schiffman's work relates only to Corps of Engineers lake and lakeside property. Sites away from the lake have by no means remained pristine and undamaged. The author must emphasize here that no large scale surveys have been done on areas away from the former river course or (what is now) lakeside. While the areas surveyed would seem to be those in which habitation is most likely to have occurred, it is notable that one major site in the area is at least one and one-half miles away from the area which has typically been surveyed. This site, Ker-311, the Long Canyon Village Site, rests on a hillside on the south side of the valley of the South Fork of the Kern River and was not discovered until 1973. Though sites exist in these areas away from the river (as we can affirm by examining the ethnographic patterns of settlement), we have specific data on few such sites, much less of their condition. Only a major and thorough archaeological reconnaissance could yield this data.

The condition of Ker-311, and reports of local inhabitants, can give us some examples of impacts suffered by sites away from the resevoir area. A significant impact at Ker-311, and undoubtedly significant in the impaction of other sites, is "pothunting". Collectors and amateur "archaeologists" have been picking up artifacts from the surfaces of sites for years and, worse, excavating holes in middens, and disturbing the remains of structures. Numerous pestles were observed on the surface of one site by one archaeologist, only to have disappeared by the time another archaeologist visited the site (personal communication R. Schiffman 1976). Amateur excavations have disturbed archaeological features to such an extent that their outlines are almost unmappable (see feature 7 map, Ker-311). Locals talk of collecting "arrowheads" and beads by the dozen.

According to local reports, the surface artifacts of Ker-311 have been collected since the 1930's (personal communication, Robert Schiffman, 1976a). This collection has resulted in a dearth of surface information about the site including, to a degree, its extent. Further, artifacts which may have served as archaeological time markers (artifacts representative of a specific position in the archaeological sequence) have perhaps been removed. Features have been disturbed and even totally destroyed through disarticulation.

Amateur excavation, besides resulting in the impacts described above, has damaged deeper levels of the site, disturbing midden areas and features to an even greater extent than does surface collection. Worse, amateur excavation disturbs subsurface associations of artifactual material, which associations can provide valuable information about a site only if they remain undisturbed in their original contextual settings.

Pothunters disturb archaeological sites and leave no record of the disturbance except, perhaps, a few random holes and the negative evidence of a paucity of in-situ artifacts. Disturbance of an area which might have yielded, to the trained archaeologist, valuable insights into the lifeway of a people, through careful recording and analysis of many factors (only one of which is the actual artifact collection), yields to the pothunter merely a few "dead" projectile points and beads.

Equally disturbing is the impact on archaeological sites of off-road vehicles. Such vehicles driven across a site not only provide pothunters with easy access to the site, but damage the resource in several ways. First, tracks are created which both lead others to the site, and create erosion through the site. Rock foundations may easily be driven over and, their alignment destroyed, become archaeologically unrecognizable as features. Midden is severely disturbed, and fragile artifacts on the surface or just below it may be crushed. Earth-stabilizing plants, too, are destroyed. A casual driver may destroy archaeological resources without even realizing that he is encountering them.

Vehicles driven across the site, both casually and by pothunters obtaining access to the site, have had a major impact on the Long Canyon Village Site. One road and several tracks created by repeated vehicle use cross the site. Obviously, driving over artifacts and archaeological features damages and destroys them, regardless of whether the driver enters the site with the intent of pothunting or whether he is simply out for a drive. As the driver of one vehicle said when a BLM archaeologist stopped him as he entered Ker-311, "I wouldn't recognize one (an archaeological feature) if I drove over it."

Grazing cattle further disturb archaeological sites. Not only do cattle change the environment of the site by grazing away the native plants, allowing other plant types to grow or the soil to erode, but they do immediate physical damage to certain archaeological features. Cattle may disturb rock rings (house foundations) and alignments by walking over them, and churn up soft midden areas with their hooves.

Rodents and other burrowing animals are another, perhaps unmitigatable, factor in the disturbance of archaeological sites. Larger animals can destroy an archaeological feature by burrowing into and through it. A rock ring, for example, may be greatly deformed and displaced by a burrowing animal. Small rodent burrows are ubiquitous in midden areas, turning them into fragile honeycombs. Artifacts and what stratigraphy exists are displaced, and the midden becomes exceedingly sensitive to the impacts of cattle, people and vehicles crossing it, as the rodent burrows collapse, further disturbing the earth.

Cattle grazing on Ker-311 have disturbed it somewhat, by churning up the midden as they walk over it. Rodent activity has resulted in an extensive degree of damage to midden areas and (by larger burrowing animals) to some features, as described above (see also feature maps, particularly the map of Feature 7, Ker-311).

The above description of impacts to archaeological sites presents an impression of fragility. Cultural resources are fragile. The fact is not that the archaeologist is so possessive of his site that he is maddened by a pothunter who carries off a few projectile points, or a cow leaving its footprint. The archaeologist's awareness of a site's fragility, and his sensitivity about what may seem minor disturbances, lies rather in the fact that his main source of information is found in the relationships between artifacts, and the context in which he finds them. A stone tool found in association with basketry remains yields different information to the archaeologist than a stone tool found in a charred pile of fish or animal bones. A bead associated with dance regalia has a different significance to the archaeologist than beads found in a cache in a cranny in the rocks. To the archaeologist context is all-important, and anything which disturbs context must be considered a threat to the cultural resource.

All of the factors described as impacts above are impacts because they disturb the context in which artifacts are found, the stratigraphy of the soil from which artifacts are recovered and on which features are based, and the patterns on the surface of a site which can tell the trained observer, the archaeologist, a great deal about the site.

Because of the fragile nature of archaeological resources, it is extremely important that they be protected from the impacts described above. In the following section, suggestions for the elimination or mitigation of these impacts at Ker-311 will be given.

VI. C. Impact Mitigative Suggestions for the Long Canyon Village Site

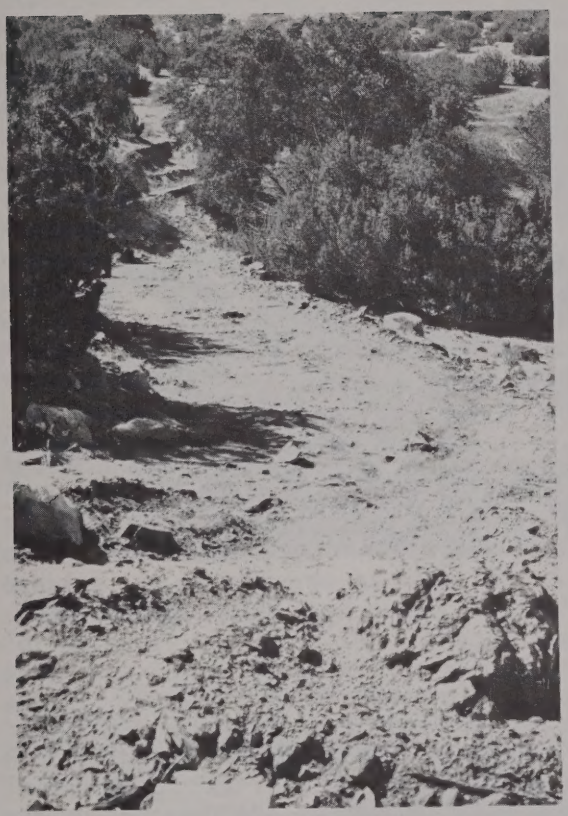
The resources of archaeological site 4-Ker-311 have been impacted and continue to be impacted in several of the ways described in the preceding section. Following are some mitigative/protective alternatives for the management of the resources of the Long Canyon Village Site and the author's evaluations and recommendations concerning these alternatives:

Preliminary to undertaking any of the following mitigative measures, the boundaries of the section on which the site rests should be surveyed and flagged. This is essential in determining which roads can be blocked and where fencing should be placed. Certain of the suggested mitigative measures are interlinked. Some are highly recommended, and will be so noted.

1. Mapping - The Long Canyon Village Site, its perimeters and its features, was mapped in the course of the project of which this paper is a part. This is an essential first step in the protection of this site. Data on the relationship of features of the site to each other and on the number and types of features is collected and preserved through mapping. The SE section corner of the section on which the site mainly rests was used as a permanent datum point in mapping.

2. Road Blocking - After the boundaries of the site have been determined it will be possible to ascertain which of the roads which cross or enter the site may be blocked. Vehicular traffic must be kept off the site if the site is to be preserved. A road (A) has been bulldozed up to the southwestern edge of the site within the last year. This road does not cross the site, but merely leads to it. The main road (B) leading to the site from the northeast crosses the site, but leads nowhere, and has been completely cut at one point by an arroyo. Within the last months these two roads have been connected by vehicle tracks, despite the fact that a road block of boulders had been placed across road (B) as a test of roadblocking as a traffic-preventative measure. This road block was removed after having been in place for about two months, and traffic across the site has resumed and even increased, with new vehicle trails throughout the site. Another road (C) crosses a sparser area of the site, about 1000 feet north of road A. This road seems not be heavily travelled.

   It is essential that vehicular traffic across the site be stopped. Once the boundaries of the section have been plotted on the ground it can be determined whether the roads entering the site are on BLM lands. If they are, they must be blocked. Blocking road (A) may be difficult, as it is situated in an open area and a road block might be bypassed by vehicles. Possibly a boulder road block could be



Road A, Ker-311.
(See Impact Mitigative Suggestions).

Road B,
Ker-311
(See Impact
Mitigative
Suggestions).

Gully created by flash flood across Road B, September, 1976. Road currently impassable (January, 1977).

experimentally placed. A periodic check for new vehicle tracks would show whether such a barrier was effective, and if it were not, other types of road blocks could be tried. In September, 1976, a severe storm caused flooding throughout the valley of the South Fork of the Kern. A flash flood created a deep channel across Road B about one-quarter mile below its entrance to the site. This will very effectively block vehicle access to Ker-311 from this quarter for some time to come. Road blocking measures here are, therefore, unnecessary at present. However, Road A should be blocked immediately. Only fencing could block access to road C, as vehicles could easily travel offroad in the area in which it rests. As this road has had little impact on the site, no measures other than the possible fencing are recommended at this time.

3. Fencing - Fencing of the perimeter of the portion of the site which rests on BLM lands (nearly all of the site) has been suggested (Eric Ritter, personal communication Alan Garfinkel 1976). A secondary possibility would be the fencing of the two main loci of the site (see map). While this would be considerably less expensive, it might serve to point out these locii to pothunters, so could endanger more than protect the site. It would cost $2250.00 for material and labor for the approximately one and one-half mile perimeter to be fenced with a barbed-wire drift fence (reference above). Possibly fencing would eliminate the necessity of road blocking by serving to prevent vehicular traffic across the site. Fencing has frequently been ignored and/or destroyed by ORV drivers in the past. If road blocking is not effective in preventing vehicular traffic across the site, however, this measure must be tried. Probably fencing, especially fencing resembling cattle fencing, would be more effective for our purpose than road blocking, so this measure is highly recommended.

4. Cattle Prohibition - As a corollary to fencing, the area in question would have to be removed from consideration as grazing land. Since cattle grazing on the site churn up the midden (which has already been rendered quite fragile by rodent activity) as they walk over it, and make trails which create erosion through the site, fencing would serve a doubly protective purpose.

5. Rodent Repellent - A rodent repellent which would discourage rodents from tunnelling should be distributed in major midden areas of the site. It must be emphasized that repellent should be used only if it will not destroy rodents, as this could create an ecological imbalance. Preliminary inquiries have yielded no information about such a repellent, but further research, possibly by an ecologist, might be directed toward this problem. A repellent such as that described could be valuable in the protection of this as well as other archaeological sites.

NOTICE
Ancient Indian ruins and artifacts in the vicinity of this notice are fragile and irreplaceable. The Antiquities Act of 1906 protects them for the benefit of all Americans.
ENJOY BUT DO NOT DESTROY YOUR AMERICAN HERITAGE
Any person who, without official permission, injures, destroys, excavates or appropriates any historic or prehistoric ruin, artifact or object of antiquity on the public lands of the United States is subject to arrest and penalty of law.
Permits to excavate sites or remove artifacts can be issued only to recognized educational and scientific institutions.

Bureau of Land Management antiquities sign. Placed at Ker-311, June, 1976.

Antiquities sign placed near pothunter excavation in rock ring at Ker-311.

6. Signing - Signs advising that disturbance of archaeological antiquities on public lands is illegal have already been placed on the site. Three signs have been placed, one at each of the locations which has been severely disturbed by pothunter excavation (see photos). These have remained undisturbed. Stands for the signs placed were improvised from rocks; poles approximately four feet long are recommended as replacements for these rock stands. The poles should be stuck one foot into the ground, and the bottom of the sign should rest on or near the ground. The object of signing is to provide a warning (and, it is to be hoped, a deterent) to pothunters, without making the site obvious to casual passers-by.

   If road blocks are placed, signs explaining that the road blocks have been installed to protect cultural resources could be placed on the road blocks. However, our aim is to prevent visitation to the site, not to attract it. Signing on road blocks might attract people to the site, and so could run counter to our purpose. If a fence is erected, it should not be signed - it would serve its purpose more effectively if it appears simply to be a cattle fence.

7. Patrolling - The Long Canyon Village site should be frequently patrolled by archaeologists or ranger-archaeologists familiar with its resources. Frequent patrolling is essential in determining the effectiveness of road blocking or fencing as protective measures. Patrollers should be familiar with vehicle trails and other current damage to the site so that they can assess changes in the site's condition. Changes in the site's condition resulting from the ineffectiveness of road blocking or fencing measures should initiate the immediate implementation of further protective/mitigative measures. Patrolling of the site is highly recommended.

8. Land Exchange - A small portion of the site (see site map) rests on private lands. In the interest of complete management of the site, it is recommended that this portion of the site be obtained by the Bureau of Land Management, either by exchange or by outright purchase. A list of private land owners and their addresses is filed at the Bakersfield BLM. If obtaining these lands is not considered, contact with land owners should be made, and protective arrangements, if amenable to the land owners, should be made individually. One adjacent land owner, Norry Darrough, is anxious for the site to be protected, and will cooperate fully with our management plans. Mr. Darrough is planning to sell his property, and purchase by the BLM, if it could be negotiated rapidly, is highly recommended.

9. Mitigative Archaeological Research - In view of the only tenatively protective nature of the measures recommended above, in the interest of preserving and protecting as much of the archaeological data available at this site as possible, the following measures are most strongly recommended:

a. Total surface collection of all artifacts on the site should be undertaken as soon as possible. Every artifact should be catalogued, with provenience data taken from the permanent datum point mentioned under "Mapping". This project could be undertaken either by BLM archaeologists or by archaeologists from a qualified scientific institution. If the BLM undertakes collection and recording of artifacts, artifacts and catalogue should be turned over to an institution with facilities for studying, analyzing and publishing data on the collection.

   This institution could perhaps work under contract to the BLM, or possibly could do the work in the process of its own functioning (i.e. through an archaeology field class).

b. A excavation research design should be planned as a final mitigative measure. It is to be hoped that at least sample excavation would take place as soon as possible, in view of the fact that archaeological data is being lost continually through erosion, pothunting and offroad vehicle use, none of which can be wholly prevented by the measures above. See "Suggestions for Further Research" for some questions toward which the excavation research design might be directed. The research design could possibly be constructed in cooperation between BLM archaeologists and archaeologists associated with a scientific institution. Excavation would be done and data analyzed and published by such an institution under contract with the Bureau of Land Management.

The Long Canyon Village Site is an important cultural resource of the South Fork Kern River area. The site is greatly endangered by the activities of artifact collectors and drivers of off-road vehicles. If this site cannot be removed from danger by the protective measures suggested, it is imperative that mitigative measures be implemented immediately. If they are not, invaluable data which this site could provide on the Tubatulabal of the South Fork of the Kern will be lost beyond retrieval. Time is of the essence in the implementation of both protective and mitigative measures.

VII. Suggestions for Further Research

Following is a list of suggestions for further research both on site Ker-311 and on the study area of this project in general. Some of the suggestions are merely research possibilities, perhaps to be pursued by a scientific research institution at some future date. Others are recommendations for archaeological work by Bureau of Land Management archaeologists or by archaeoloigsts under BLM contract. These will be indicated by the notation "BLM" in the left margin.

I. Ker-311

BLM A) Record all feature data recoverable without excavation, on standard forms (on file with Bakersfield District Archaeologist, Helen Clough).

B) Pollen studies on the interiors of mortars

C) Floral studies, faunal studies

BLM D) Total surface collection of artifacts (see preceding section)

BLM E) Test excavations in midden areas, feature area, mortar areas. (see preceding section). Possible complete excavation

1. seasonality of site
(were "winter" villages inhabited year-round?)

2. population patterns of site

3a. artifactual chronology

b. position in the archaeological sequence of area? (see II)

II. Study Area - Valley of South Fork of Kern River

BLM A) Archaeological site reconnaissance of all public lands within the study area. Record all sites using state numbers. Possibly let contracts to students as internship projects (personal communication, Karen Nissen 1976). (See Alan Garfinkel's A Cultural Resource Management Plan for the Fossil Falls/ Little Lake Locality).

B) Archaeological site reconaissance of all private lands within study area. Record all sites with state numbers.

C) Classification of all sites as to type (i.e., milling site, winter village, pictograph site, etc.), condition, research value.

D) Study of surface artifacts and of features of all sites. Attempt to determine relationship between sites, chronological sequence of sites, archaeological sequence.

E) Compile list of all private collections in area. (photograph and classify collections, if possible). Collect site information from private collectors, if possible.

F) Photograph all pictographs in area. Historic, prehistoric significance

G) Gather bibliography on all materials relating to archaeology of area.

BLM H) Produce interpretive materials on protectable sites with easy access, for possible visitor-use development.

BLM and others I) Produce protective plan for archaeological sites of area possibly to include:

a. collection of site surfaces, by a research institution.

b. feature mapping, site mapping all sites.

APPENDICES

Appendix I

Tobacco

Two species of tobacco (Nicotiana bigelovii and Nicotiana attenuata) grow wild in the valley of the South Fork of the Kern River. Patches of these plants were tended and harvested by the Tubatulabal.

In early June a woman might select a patch of tobacco and begin pruning it. Pruning consisted of snipping side shoots off of plants, in progressive stages. As the plants grew, the pruned stalks developed larger, thicker leaves than the unpruned plants.

After three or four weeks, the leaves of the pruned plants were stripped from their stalks and gathered in sacks. The sacks were emptied at a central location, and a woman stripped the midrib from each leaf.

Curing of the tobacco continued through stages which included sprinkling the leaves with a water/pine nut solution, wrapping them in willow bundles, and spreading them out in the sun to dry. A willow "wall" erected around the drying area protected the plants from the wind and from wandering animals.

About six weeks after the first pruning, the tobacco was gathered up and pounded in mortars with pestles twelve to fifteen inches long and three to four inches thick. These pestles were stored at the mortar bed. The tobacco was pounded, sorted and repounded until it was reduced to a fine powder.

An infusion of whole, fresh tobacco plants was then mixed with the tobacco powder to make a stiff dough, which was shaped into balls. These balls were dried for ten days, at which time they were ready for use.

The prepared tobacco was usually mixed with lime for use. The lime could be obtained in the South Fork Valley from calcareous deposits (which were dug, burned and slaked) or by burning and pounding mussel shells. It was claimed that lime could also be obtained by old men who sprinkled eagle down on the water of a spring east of Fay Creek and asked for lime: When the old man returned to the spring, lime would be piled up along its edge, ready for him to remove.

Lime and tobacco were mixed with a three to five inch long pestle in a small mortar which was kept in the house for this purpose. One informant claimed that the mixture was kept in a container made of the horn of a mountain sheep.

Pinches of the tobacco-lime mixture might be chewed or, mixed with water, be made into small pellets which were held on the tongue at intervals during the day, to obtain a "drunken" feeling.

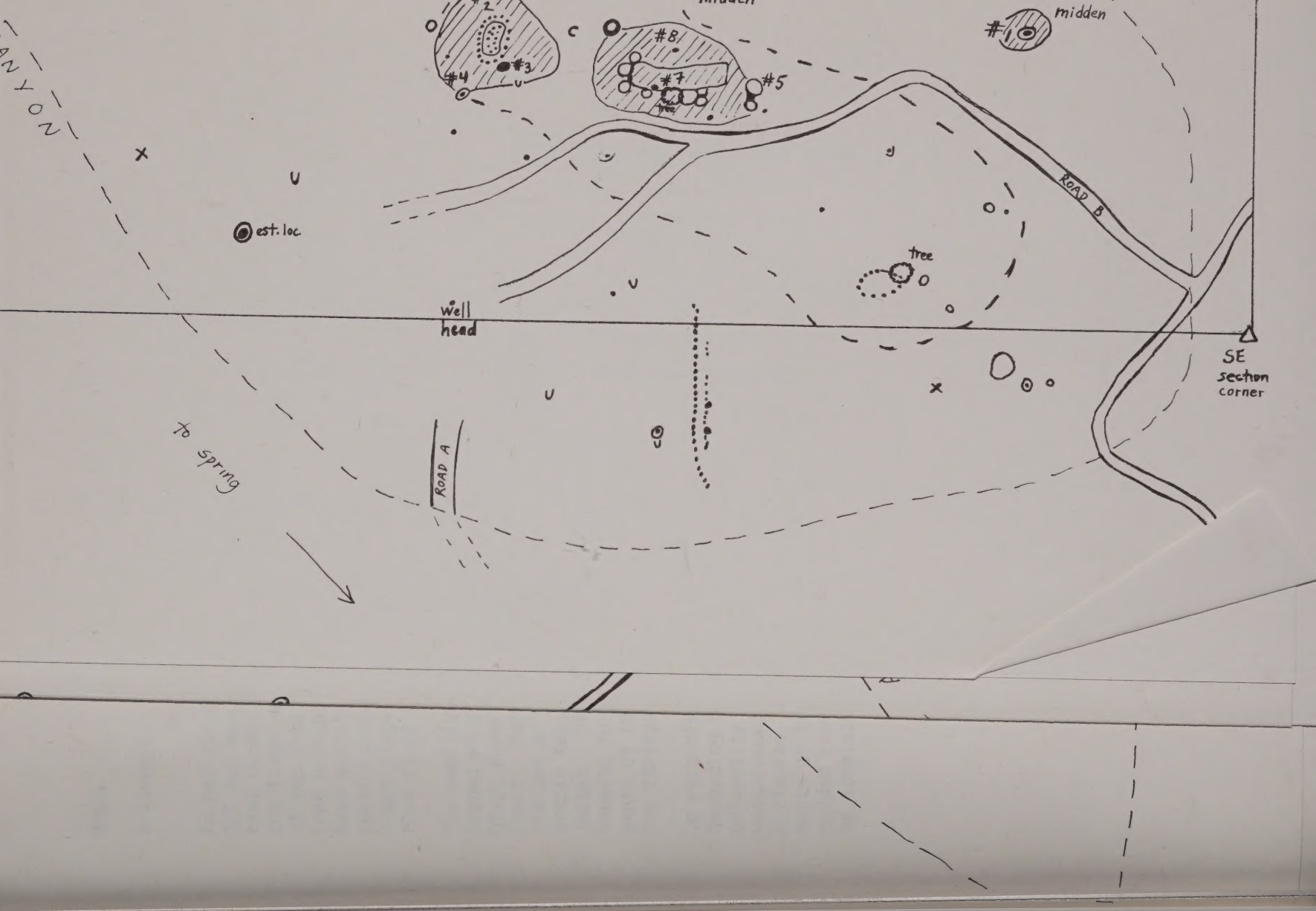
A decoction of the tobacco-lime mixture was drunk by some persons before they retired at night. This induced vomiting and resulted in sound, dreamless sleep.

Tobacco without lime was smoked by old men and by male shamans. Tobacco, powdered in a mortar, was smoked in a pipe (a hollow length of cane), two or three puffs deeply inhaled once or twice a day.

Balls of tobacco were a wealth item, used in intra- and intertribal trade, and loose tobacco was used in certain rituals.

Appendix II

The attached map was made in January, 1977 by Sally Salzman and Eric Montizambert. As a transit was not available, a staff compass and a measuring tape were used in mapping. The site was gridded into fifty foot squares with numbered columns and lettered rows. The SE corner of the section on which the site mainly rests was used as the primary datum point and was labelled D1 on the map. Numbers increased westward and letters increased northward. Because of restrictions of time the northernmost portion of the site was not mapped. Survey of this area revealed approximately ten features which were not covered by the map; four graneries, five slicks and one bedrock outcrop containing two or three mortars. It is felt that the main loci of the site were mapped.


midden
#1
#2
#3
#4
#5
#7
#8
midden
est. loc.
tree
well head
SE section corner
ROAD B
ROAD A
to spring

midden

GULLY

feature locations north of this line estimated only

midden

tree

CANYON

approximate boundary of site

GULLY

approximate boundary of site

GULLY

midden

midden

#1

#2

#3

#4

#5

#6

#7

#8

est. loc.

well head

tree

Road A

SE section corner

to spring

Road A

TN

100 feet

site width: 1/5 mi. (approx.)
site length: 3/5 mi.

4-Ker-311

The Long Canyon Village Site

- bedrock mortar
- u grinding slick
- x "grainery"
- O rock ring
- rock alignment
- midden concentration

Appendix III

Feature Mapping Rationale and Methodology

As explained in Section VI. A. of this study, not every feature of Ker-311 was mapped in the course of this project. It was considered essential to map three features - the two large bedrock mortar complexes, and the large rectangular structure in the main feature concentration area of the site. Other features mapped were: 1) two joined "house" rings (one probably a storage house ring); 2) one "grainery" with a bedrock base containing three mortar holes; 3) a midsize bedrock mortar; 4) a small bedrock mortar; 5) a single house ring, one of three associated house rings. The mapping of the rectangular structure included three rock rings and two straight walls which appeared to be appended to it.

The smallest features - two bedrock mortars and the "grainery" - were mapped with the aid of a compass and a measuring tape, on 8½ x 11 inch graph paper. A line representing magnetic north was drawn on each sheet. Mapping of the other features was more complex. This entailed the use of two perpendicular sets of parallel stings conveniently spaced across the feature. Each string was marked off in intervals of ten inches. Distances between strings was then measured, and a grid corresponding to the layout of the strings was drawn on graph paper. Measurements of the feature, its perimeters and details, were then taken from the strings. Mapping was accurate to approximately five inches.

In recording bedrock mortars, additional measurements were taken. Recording forms devised by Dr. Michael Moratto of San Franciso State University were employed. For each mortar hole, width, length and depth measurements were recorded. As these measurements can only be considered estimates, due to the problems of ascertaining the exact location of the mouth of the mortar hole for purposes of measurement, the figures recorded should be viewed as comparisons between mortar holes, rather than as absolute statements of precise size.

Feature Descriptions

Following are feature descriptions of the features mapped during the course of field work for this project. Also included is a map of Feature 7, the large rectangular feature discussed previously. For more information, see the section of this paper dealing with description and interpretation of the Long Canyon Village Site. Maps and feature records are on file at the Bakersfield Office of the Bureau of Land Management. Locational data for specific features may be obtained from the site map of Ker-311, which comprises Appendix II.

4-Ker-311 recorded 7/9/76

Feature 1

Feature 1 is a roughly oval bedrock mortar surrounded by a rock ring which extends 30 to 60 inches from every side of the bedrock. Alignment of the ring is clear, although some rocks have been scattered. Many stones are partially buried. The rocks of the ring are unmodified, except for several grinding implements which are scattered around the ring and across the bedrock. Materials, sizes and shapes vary widely.

Dimensions of bedrock:

height above present ground level - 9"
length - 7'11"
width - 6'8"

Number of mortars - 14

Number of shallow depressions - 4

Dimensions of mortars:

diameter - varies from 2¼" to 7", average 4½"
depth - varies from slight depression (less than ½") to 6½"
average 2"
shape - circular and ovate
distribution - scattered

4-Ker-311 recorded 7/21/76

Feature 2

Feature 2 is a large bedrock mortar. As parts of the bedrock are overgrown by brush and roots, partially covered with earth, and scattered with rocks from the surrounding rock ring, this feature cannot be completely mapped without some excavation. No excavation is to be done at this time.

A rock ring surrounds and in places is superimposed on the bedrock. The rocks are of widely varying sizes, and the contiguity of the ring is uneven. In some places the rocks are well aligned in a row one or two stones deep; in other places there are gaps in alignment, stones cover mortar holes or are scatterd across bedrock and piled in heaps. Probably there has been a fair amount of pothunter disturbance of this feature.

Midden surrounds the mortar and is especially obvious at the south and east sides. It is black and friable, but bone and shell are not apparent. There also appears to be midden on top of parts of the bedrock. A large Yucca bush grows in the center, a considerable amount of earth around its roots. Some midden near the mortar has been excavated by pothunters and some brush has been uprooted.

Dimensions of bedrock:

height of bedrock above present ground surface - varies from 0" - 6"
length - 28' 4"
width - 15'

Number of mortars - 45

Number of shallow depressions - numerous

Dimensions of mortars:

diameter - varies from 3½" to 7½" - average approximately 5½"
depth - varies from 3/4" to 11", average approximately 5"
shape - round to ovate
distribution - scattered in two locii

4-Ker-311 recorded 7/21/76

Feature 3

Feature 3 is a bedrock mortar complex on a granite boulder. There is no rock ring associated with this feature. There were crushed obsidian fragments in several of the mortar holes at the time the feature was recorded. Several grinding implements were found under a nearby juniper bush.

Dimensions of bedrock:

height above present ground surface - 0" to 21"
length - 13' 2"
width - 9' 8"

Number of mortars - 5

1 shallow, irregular depression - may be natural

Dimensions of mortars:

diameter - varies from 1½" to 5¼" - average diameter approximately 3 3/4"
depth - varies from ¼" to 2½" - average depth approximately 1½"
shape - round to ovate
distribution - scattered

4-Ker-311 recorded 7/21/76

Feature 4

Feature 4 is a small bedrock mortar surrounded by a rock ring. Parts of the ring have been purposely disassociated by a vandals; rocks disturbed and scattered. No midden is associated with this feature. This feature may be a tobacco processing unit.

Dimensions of bedrock:

height about present ground surface - 0" - ½"
length - 6'3"
width - 2'6"

Dimensions of rock ring - 30" to 40" extension from bedrock in every direction

Number of mortars - 3

Number of shallow depressions - 5, one large irregular depression around mortar #3

Dimensions of mortars:

diameter - varies from 3½" to 5", average 4¼"
depth - varies from ½" to 2", average 1"
shape - round to irregular

4-Ker-311 recorded 7/23/76

Feature 5

Feature 5 is a house or storage house ring well-articulated, in excellent condition. In most places, the ring is five to eight stones high and deep. Rocks are of various shapes, sizes and materials, tending to average about ten cubic inches. There are a few scattered rocks inside and around the ring. An animal burrow disturbs the northeast quarter of the feature. Some shallow excavation, probably by a pothunter, is apparent. Soil inside and outside the ring is yellow-brown, friable and grassy. No artifacts are apparent. There are two similar rings immediately adjacent to Feature 5 in a southwest line. There is a large juniper bush at the northwest quarter of the feature, just outside the ring.

Dimensions:

Outside perimeter - approximately 195" x 185"
Inside perimeter - approximately 110" x 120"

4-Ker-311 recorded 7/25/76

Feature 6

Feature 6 consists of two joined rock rings, sharing one wall. The southernmost of these is disturbed and disaligned, the northern one is well aligned, with few scattered rocks. Bushes of various types grow and have grown in walls and there is pothunter or rodent digging in the west side of the north ring. The ground surface inside the rings is slightly depressed in the center, rising toward the edges of the rings and then, outside the rings, dipping slightly to ground surface level. Walls are one or sometimes two stones high, two to four stones wide except where the two rings join, where the wall is in places six to eight stones wide. Wall stones are of various materials and sizes, averaging smaller than those of Feature 5, about five to seven cubic inches or less, though a few are quite large. No artifacts were discovered. There is no midden associated with the feature. The soil in and around the feature is yellow brown, friable, and gravelly. Little or no vandalism is apparent.

Dimensions:

southern ring:

Outside perimeter diameter - approximately 190"
Inside perimeter diameter - approximately 120"
Shape - irregular

northern ring:

Outside perimeter diameter - approximately 175"
Inside perimeter diameter - approximately 120"
Shape - round

4-Ker-311 recorded 7/28-7/30/76

Feature 7

Feature 7 is extremely complex and is best described in detail by the accompanying feature map. The feature is a basically rectangular structure, composed of rocks of various types, sizes and shapes. In parts the walls of this structure are well articulated, several rocks tall and wide, and closely packed. In other areas, particularly at the west end of the north wall, the wall is badly disturbed by pothunter and rodent activity and the feature can only roughly be traced. In places along the wall, a raised earth alignment under the stones in the line of the wall is apparent.

The rectangular main section of the structure is its longest component. Its long walls run roughly parallel and swell apart slightly toward the west end. From the west end of the rectangular structure, two rock rings circle out and then join each other. Feature 6 is very near the east end of the rectangular structure. Two structural remains extend out from the south side of the main structure. One of these is semi-circular; the other appears to be the remnants of a small square or rectangular structure. Another circular structure may have extended from the south wall of the rectangular structure, between the two structures just mentioned: this was obscured by a large juniper tree.

There is severe pothunter and rodent distubance in the west quarter of the main structure.

For illustration and dimensions, see feature map.

4-Ker-311 recorded 7/28/76

Feature 8

Feature 8 is a small granite bedrock mortar, situated near the north wall of Feature 7. No rock ring or midden accompanies this feature. No grinding implements are apparent in the vicinity, but several of the beads mentioned in this paper were found nearby.

Dimensions of bedrock:

height above present ground surface - 0" - 6"
length - 3'9"
width - 2'1"

Number of mortars - 7

Number of shallow depressions - several, irregular

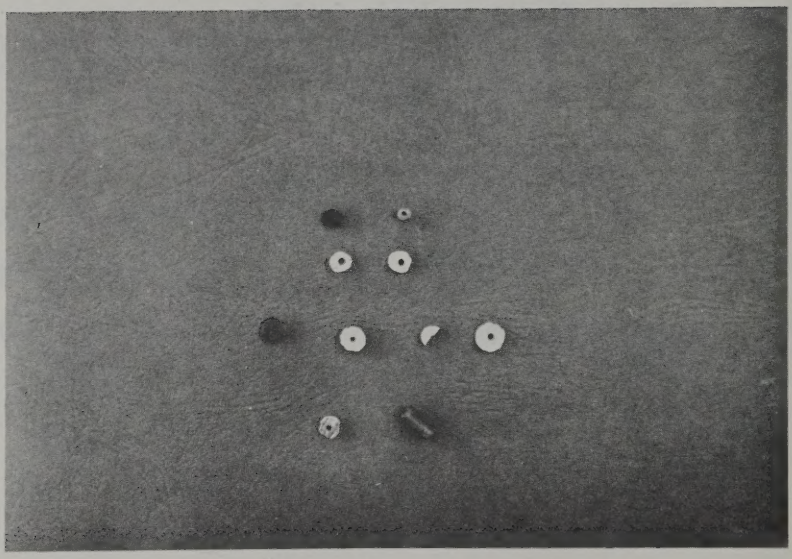
Dimension of mortars:

diameter - varies from 2" to 3½", average approximately 2 3/4"
depth - varies from ½" to 1 3/4", average approximately 7/10"
shape - round

Appendix IV

Chronology: Beads from Surface of Site Ker-311

Nine beads and one fragment of a bead were found on the surface of the Long Canyon Village Site during feature mapping. No purposeful collection was made; the locations of beads which were found by chance were noted, and the beads were later collected and sent to Chester King for analysis. The beads are now stored at the Bakersfield Bureau of Land Management. Chester King's analysis follows.



(Scale: 60% of lifesize)
Beads from Ker-311. Collection locations in field notes
1. steatite bead 2. glass trade bead
3. clam shell disk bead
4. olivella sidewall beads
5. haliotus epidermis bead 6. mytilus hinge bead

Surface Collection Beads - Ker-311 (all measurements in mm.)

#1 Olivella wall disc (saucer) - diameter 5.4, hole 1.5. Bead is possibly burned. White. eroded surface? rough disc?

#2 Haliotus rufescens epidermis - diameter 5.3, hole 1.1, thickness 1.5. rough disc - eroded on edges and surfaces.

#3 Olivella wall disc - "Rough Disc" - diameter 6.3, hole 1.0. slightly ground, well chipped.

#4 Burned Olivella wall disc - "Rough Disc". diameter 5.9, hole 1.0, well ground.

#5 D. K. Brown Stone bead (Steatite bead ?). well shaped disc. diameter 4.1, hole 1.6, thickness 1.8.

#6 Glass bead - opaque copper blue seed (cone) bead. spheroidal. diameter 3.2, thickness 2.3, hole 1.2. Gibson CZc.

#7 (2) Olivella wall disc beads. One ½ fragment of well ground rough disc? One whole weathered bead like #1. Whole bead-diameter 5.5, hole 1.5. Fragmented disc-diameter 5.4+ (close to actual diameter), hole fragmented, probably small.

#8 Olivella wall disc - "Rough Disc". diameter 7.2, hole 1.3 fairly well ground

#9 Mytilus tube bead. Short tube. diameter 3.8, length 8.7, hole 1.7.

Summary - All the Olivella wall disc beads are probably rough disc beads and probably date from ca. 1805 to ca. 1830 A.D. The Haliotus rufescens disc would also date 1810. The glass bead is a type found in 1782-1805 channel contexts as well as probably after 1816 at the Ventura mission according to Bob Gibson. The Mytilus tube also would date ca. 1782-1816 A.D. The stone bead is probably of local Sierra Nevada area manufacture and could be contemporary with the other beads or may be earlier. During the Mission period of Santa Barbara channel, 1782-1834 (i.e., when these beads were made), more beads were deposited in middens than during previous periods. These beads are also very common throughout the Southern Yokuts area, at sites near Tehachapi and throughout Southern California, and some are found as far north of the northern part of the Northern Yokuts area.

Chester King

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The following materials relating to this project are on file at the Bakersfield office of the Bureau of Land Management:

1. Original subsistence pattern chart
2. Stereo pair of aerial photos (1" = 1000'), vicinity Ker-311
3. Enlargement of original aerial photo (7/8" = 100')
4. Land status and site maps Lake Isabella area. Includes:

   -sites recorded by R. Schiffman during Army Corps of Engineers Survey, 1976
   -Voegelin's ethnographic study sites
   -Kern County state recorded sites
   -Land status, vicinity Ker-311
   -Original map of study area
   -Original map of Ker-311

5. Original of Chester King's analysis of beads from Ker-311
6. Beads, projectile points from Ker-311 (in photo file box)
7. Land plats, addresses and names of owners of private land on which Ker-311 touches
8. Records and original maps of eight features of Ker-311
9. Photographs taken by Joanne MacGregor-Hanifan - 4/75
10. Negatives of photos of Ker-311 taken by S. Salzman 6/76-10/76
11. Original field notes Ker-311, S. Salzman
12. Photos of Ker-311 not used in paper, photos of Ker-4, Ker-17
13. Infra-red slides on southern site locus.

Information about access to these materials may be obtained by contacting the District Archaeologist, Helen Clough at:

800 Truxtun Avenue, Room 311
Bakersfield, CA 93301
(805) 861-4191

Only qualified researchers can be permitted to review archaeological site files.

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